Admission date	Realization date	Signature	Remarks



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RT14/2011/v.1.0/ANG

Zakład elektroniczny TATAREK Jerzy Tatarek

USER MANUAL program version 1.0 (20.04.2011 from program v1.0)

RT-14

CONTROL UNIT OF HEATING SYSTEM WITH SOLID FUEL BOILER



The control unit controls the heating system based on solid fuel boiler in which by controlling the efficiency of the blower the burning process is under control. The receivers of the heat are as follows: Accumulator of the Warm Applicable Water (WAW) and Heating System (CH). The control unit cooperates with the 3-way mixing valve in radiator or floor or safety system of the return temperature of the boiler.

1.Basic parameters

Power	230V/30HZ
Power consumption without load	4W
Max connection power	750W
Operation conditions	0-50°C, humidity10-90%
	No condensation
Housing protection class	IP41
Fuse	6,3A/250V
Power-carrying capacity of blower output	1,5A/230V/50Hz
Number of outputs to control pumps	3 * 200W/230V/50Hz
Number of outputs to control valve motor	2 * 200W/230V/50Hz
Number of temperature sensors of water	3 * KTY81 (0+100 °C)
Temp. measurement precision	+/- 1 °C
Temp. measurement resolution	0,1 °C
Switch-on temperature of the STB safety thermostat	94°C

2. Operation diagram of the control unit



Fig.1 Basic operation diagram of the control unit (without the mixing valve)

- DM blower
- TB safety sensor of the boiler
- T1 sensor of boiler temperature
- T2 sensor of the WAW accumulator temperature
- T4 room thermostat
- P1 CH circulating pump
- P2 pump loading the WAW accumulator



Fig. 2 Operation of the control unit with the mixing valve in radiator or floor system

- DM blower
- TB safety sensor of the boiler
- T1 sensor of boiler temperature
- T2 sensor of the WAW accumulator temperature
- P1 CH circulating pump
- P2 pump loading the WAW accumulator
- P3 pump of the mixer T3 temperature sensor
- T3 temperature sensor of the mixer T4 room thermostat
- T4 room thermostat M drive of the mixing valve (of the mixer)



CE CONFORMITY DECLARATION

Ref. No. 58.RT.01.2007/1/B

We, ZAKŁAD ELEKTRONICZNY TATAREK Jerzy Tatarek 75 Swieradowska St., 50-559 Wroclaw

declare under our sole responsibility that the product: Regulator of heating system with solar collector

model: RT-08, RT-08K, RT-08P, RT-08os, RT-14

is in conformity with the basic requirements included in Directive EMC 2004/108/WE of 15.12.2004 (the electromagnetic compatibility law of 13.04.07) and Directive LVD 2006/95/WE of 21.08.07 (Laws Journal of 2007 No. 155 pos. 1098) regarding the requirements for electric devices.

To the conformity evaluation the following harmonized standards were used:

PN-EN 60730-2-1: 2002 -	Automatic electric regulators for house usage and the like. Part 2-1:
	Specific requirements regarding electric regulators for electric house
	devices
PN-EN 60730-1: 2002 -	Automatic electric regulators for house usage and the like.
	Part 1: General requirements.

PN-EN 55022: 2000 - Electromagnetic compatibility (EMC)- IT devices Characteristics of radioelectric noises. Acceptable levels and measurement methods

Complementary information:

Laboratory IASE 51-618 Wroclaw, 1 Wystawowa st.

Test report No. 39/DL/I/07 of 22.06.2007 41/DL/I/07 of 03.07.2007

Electronic Engineering Plant TATAREK has initiated management system and complies with the following standard : ISO9001: 2000 CERTIFICATE No. 133/2004 of 01.2004 Polish Foreign Trade Chamber

-19-

The last two digits of the year in which the CE marking was affixed: 07

Place of issue:

Manufacturer representative: Mirosław Zasępa

Lasper

Position:

Wroclaw

Date of issue:

08.2007

WARRANTY

1.Warranty is valid [24] months from the date of sale.

2.Producer does not take responsibility for any mechanical damages made by user. 3.MAKING REPAIRS OR MODYFYING THE DEVICE BY USER IS FORBIDDEN AND CAUSES WARRANTY CANCELATION

4.Warranty card is valid only with date of sale, seller's signature and stamp 5.Warranty and after-warranty repairs should be done only by producer, damaged regulators should be sent to producer in order to make all repairs needed. 6.Warranty protection involves the EU

7.Warranty does not exclude, not restrict and not suspend buyer's rights coming from the incompatibility of the article with the agreement (Laws Journal No. 141 Pos. 1176)

WARNING !

ANY MODIFICATION OF THE REGULATOR MADE BY USER CAN BE THE CAUSE OF SAFETY CONDITIONS DETERIORATION AND CAN EXPOSE THE USER TO ELECTRIC SHOCK OR DAMAGE DEVICES SUPPLIED.

Connection cable of regulator may be replaced only by producer or his authorized service locations

WARNING!

1. Producer does not take the responsibility for damage caused by atmospheric discharge

2. and overvoltage in the mains

3. Burnt fuses are not subject to warranty replacement

Date of sale

Seller's signature and stamp

Register No.. GIOS: E 0002240WZ

 Worn out electronic
 180

 and electric devices must be transfered to
 ph.:

 the utilization collection place, where will
 be accepted for free







- Fig.3 Operation of the control unit with the mixing valve in safety system of the return temperature of the boiler
- DM blower
- TB safety sensor of the boiler
- T1 sensor of boiler temperature
- T2 sensor of the WAW accumulator temperature
- P1 CH circulating pump
- P2 pump loading the WAW accumulator
- P3 pump of the mixer
- T3 sensor of the return temperature
- T4 room thermostat
- M drive of the mixing valve (of the mixer)

Text <xx> means the parameter with the number "xx" whose description is included in chapter 9.

3. The blower

The control unit automatically controls the efficiency of the blower. The applied PID algorithm enables the operation with modulation of boiler power- the level of generated heat is adjusted to what is needed-thanks to that the combustion process is uniform (there aren't any sudden changes of temperature in the combustion chamber and chimney), is more efficient and it guarantees longer life of the heating system. By analyzing the tendency of temperature changes the control unit modifies its settings gradually coming up to the balance point.

In case if boiler temperature is higher than the preset one, the control unit turns off the blower and realizes scavenges. The scavenge parameter is defined by "<34> TimeSCAVENGE" and "<33> BreakSCAVENGE" and "<35> EfficiencySCAVENGE".

4.The CH pump

If boiler temperature exceeds 42° C ("<41>*T.onPumpCH*"), the CH pump turns on. Below that temperature the pumps turns off causing a faster heating of the water jacket over the dew point and in fact extending the life of the boiler.

While loading the WAW accumulator or if the room thermostat operates the CH pump can cyclically run (restricting the heat flowing in to the CH system). The cyclical operation is based on switching on the pump for 45secs and then stopping it for 4mins ("<44> TimeStopPumpCH").

The control unit protects the system from freezing, automatically switches on the circulating pump if the measured temperature is below 4°C.

The control unit realizes an after-season rundown of the pump. The pump turns on for a minute if it doesn't run for a week.

5. The WAW pump

The control unit controls the pump loading the WAW accumulator. The cycle of loading starts if the WAW temperature sensor indicates a temperature below 50° C (" < 52 > TminWAW") and ends if the temperature is above $60^{\circ}C$ ("<51> TmaxWAW"). After finishing loading the WAW accumulator the pump runs still for a minute ("<46> TimeRunDownPumpWAW"), which prevents the temperature in the jacket of the boiler from rising especially in summer time when the CH pump doesn't run. The loading is restricted to 2 hours if the minimal temperature has been reached <52>. The loading is indicated on the display of the pumps operation by the dot under the tap sign - see Ch.8.3/page 8) The WAW pump operation is stopped if the following requirements are not met: water temperature in the boiler is below the preset threshold 42°C ("<42> T.onPumpWAW") or water temperature in the boiler is not higher by 5°C than in the WAW accumulator("<54> DeltaWAW").

At the lack of the temperature sensor of the WAW accumulator (T2) the loading is realized at a wild guess. The WAW pump switches on if water temperature in the water jacket of the fireplace reaches the preset value or is above 50° C ("<52> TminWAW").

The control unit realizes an after-season rundown of the pump. The pump switches on for a minute if it doesn't run for a week.

5.1 The WAW priority and the summer mode

The control unit has different strategies for loading the WAW accumulator as follows:

- **OFF-** the WAW pump is off. The CH pump can run.
- SUMMER- turning off the heating system in summer time (the CH pump doesn't run, mixer operation - see Ch.6/page 4). The fireplace operates only in the function of preparing the WAW.
- ON- normal operation (parallel operation of the pumps) without favoring the WAW circuit
- **PRIO** faster reaching the readiness of the WAW accumulator by restricting the reception of the heat by the heating system. The CH pump run cyclically, Turning off the WAW pump after loading the accumulator causes the normal operation of the CH pump to come back.
- SPEC- the pumps run as in PRIO mode. Additionally during loading the accumulator the preset temperature of the boiler is raised to 65°C ("<53> TLoadWAW").

6. The mixing valve (mixer)

The control unit controls a typical mixing valve (drive 230V/50Hz, integrated limit switches), keeping up the preset temperature set by a user at the output of the valve. The drive motor of the valve has got windings. Applying voltage to the one winding closes the mixing valve causing temperature drop behind the valve, voltage on the other winding opens the mixing valve and increases temperature behind it. The control unit is equipped with a temperature sensor to be mounted on the pipe behind the mixing valve and 2 outputs to control the drive of the valve and 1 output to control the pump of the mixer (P3).

THE CONTROL UNIT IS ADAPTED FOR CONTROLLING THE 3-WAY MIXING VALVE. IN CASE OF THE 4-WAY MIXING VALVE YOU HAVE TO DECIDE WHICH OF THE FUNCTIONS WILL BE USED - REGULATION OF TEMPERATURE OR KEEPING UP THE MINIMAL RETURN TEMPERATURE. -4-

TEMPERATURE SENSORS:

- TΒ safety sensor of the boiler STB (in case of not using STB, apply the jumper)
- T1 boiler sensor
- T2 sensor of the WAW accumulator (in case of not mounting the WAW, leave unconnected)
- sensor of the mixer (in case of not mounting the mixer, leave unconnected) T3
- T4 room thermostat (in case of not mounting the thermostat, leave unconnected) T5
 - available
- T6 available

WARNING!!!

WE INFORM THAT THE RT-14 CONTROL UNIT MAY BE USED ONLY TO THE APPOPRIATE DEVICES. ALL THE REQUIREMENTS IN TERMS OF TECHNICAL NORMS AND CURRENT BUILDING LAW THAT RELATES TO THE CORRECTNESS OF HEATING AND STOVE-FITTING SYSTEMS PROCESSING FIREPLACE INPUTS MUST BE MET.

IMPROPER USAGE OF THE CONTROL UNIT MAY CAUSE THE DAMAGE OF THE CONTROL UNIT OR IN EXTREME CASES THE FIREPLACE INPUT ITSELF AND THE HEATING SYSTEM HANDLED BY THE FIREPLACE ALONG WITH THE COOPERATING DEVICES.



10 Installing the regulator

THE REGULATOR IS SUPPLIED BY 230V/50HZ. ANY MOVES REGARDING INSTALLATION SHOULD BE MADE AT THE DISCONNECTED MAINS.

THE REGULATOR HAS TO BE CONNECTED TO THE MAINS WITH THE ZERO-PIN BY WAY OF USING A DIFFERENTIAL DEVISE OF SEPARATING THE MAINS ACC. TO THE BINDING LAW.

! THE PRODUCER DOESN'T TAKE ANY RESPONSIBILITY FOR DAMAGES **CAUSED BY WRONG USAGE OF THE CONTROL UNIT.**



Fig.13 Wiring diagram of the control unit

MAINS 230V/50Hz:

- 2 terminals L connected in the control unit L
- Ν 2 terminals N connected in the control unit
- PE 2 safety terminals PE connected in the control unit

OUTPUTS 230V/50Hz:

- L-DM blower
- L-P1 CH pump
- L-P2 WAW loading pump
- L-P3 mixer pump

VALVE DRIVE OUTPUT 230V/50Hz:

- valve drive opening (brown or black depending on valve mounting) L-M+
- valve drive closing (black or brown depending on valve mounting) L-Mvalve drive - connect the common output (blue) to N valve drive - connect the safety cable (green-and-yellow) to PE

The mixer can operate in one of the modes: floor mode, radiator/heater mode and safety of the boiler return temperature mode ("<60> ModeMIXER"):

• FLOOR mode - the mixer keeps up the preset temperature in the range of 20...40°C of the floor system (<62p> "TempFLOOR"), additionally the alarm turns on and the pump turns off after exceeding 40°C of the floor system (<61>,, TempALARM-FLOOR"). Damage of the sensor of the mixer causes the valve closed and the pump of the mixer switches off (P3). In SUMMER mode the mixer is closed and its pump is off.

• HEATER mode - the mixer keeps up the preset temperature in the range of 20...90°C of the heater/radiator system (<62>,,*TempMIXER*"). In case of alarm caused by overheating the boiler, the mixer opens up to receive excess heat. Damage of the sensor of the mixer causes the valve opened. In SUMMER mode the mixer is closed and its pump is off.

• RETURN mode - the mixer controls the flow of the return water to the boiler in order to keep up the minimal return temperature preset by the <62>,,*TempMIXER*".parameter.

Damage of the sensor of the mixer causes the valve opened. The SUMMER mode has no effect on the operation of the mixer.

Independent of the selected mode the additional parameters (<64><65> and <66>) allow the behavior of the mixer drive to be individually adjusted.

The control unit realizes an after-season rundown of the pump and the drive of the mixer.

If they don't operate for a week the pump switches on for a minute and after it turns off the drive runs for a minute.

7. Cooperation with the room thermostat The control unit has an input to connect the room thermostat of any kind, equipped with an nonvoltage relay output. To the control unit you connect the terminals of the thermostat which shortcircuits if the room temperature is higher than the preset one. Until the room temperature is lower than the preset value in the thermostat (terminals of the relay opened) the control unit operates normally. If the room temperature exceeds the preset temperature in the thermostat (terminals of the relay short-circuited), which is signalled by the icon on the display, the control unit modifies its operation: the preset temperature of the boiler is lowered to 45°C (., <29> TempTHERMOSTAT") and the CH pump runs cyclically (see Ch4/page 3).

If the thrmostat isn't mounted then the corresponding input of the control unit should be left unconnected.

The thermostat ought to be located in the largest room of the building. In this room heater thermostatic valves must not be mounted. The thermostat is to be placed at the height of approx. 1,5m over ground, far away from windows and heaters. In the other rooms heater thermostatic valves may be mounted.

8. Handling the control unit

There are elements on the control panel (fig. 4).

The operation state is presented on the graphic display (2). The screens inform about the operation of devices, temperature of sensors; they make it possible to change the parameters etc.. The change of screen is done by pressing the CHOOSE button (7). If this is the screen that is able to change a parameter, press the CONFIRM button (6), which causes blinking of the parameter field to be changed. By pressing "+" (4) or "-" (5) one can alter its value.

By clicking the CONFIRM button (6) one confirms the changes - the parameter field stops blinking. The changed parameter not confirmed for 10 secs is not accepted by the control unit and it recalls a previous value of the parameter. The functions of the F1 (3) and F2 (8) buttons are variable. They depend on the icons displayed in their vicinity.



Fig.4 View of the control panel

- 1. Status LED diode of the control unit: ALARM (red), OPERATION (green)
- 2. Graphic display
- 3. Buton F1
- 4. Increase value button
- 5. Decrease value button
- 6. Confirmation button
- 7. Screen change button
- 8. Button F2

8.1 Alarm screens

<u>Alarm screens</u> is not seen till the following alarm situation takes place:

- 1. Damage of the temperature sensor of the boiler (T1), WAW (T2) or mixer (T3) Alarm doesn't start if the sensor T2 or T3 is not installed
- 2. Exceeding the limit temperature of the boiler
- 3. The STB safety thermostat switches on
- 4. Exceeding the acceptable temperature of the boiler set by the "<21> TempALARM_BOILER" parameter.
- 5. Exceeding the acceptable temperature of the floor heating set by the" <61> TempALARM-FLOOR" parameter

The alarm situation is stored in the memory of the control unit (even after powering off the control unit as well), sound signal is generated and the red ALARM diode blinks. Pressing the F2 button turns off the sound and the F1 button cancels alarm and if the cause of the alarm is eliminated restores the normal operation (the STB safety thermostat turns off after cooling to approx. 70°C). Further blinking of the ALARM diode means the cause of the alarm has not been removed. During ALARM the control unit lowers boiler temperature by switching off the blower and switching on the CH pump.

		PARAMETH	LI ERS CAN BE	EVEL OF PARAMETERS 3 CCHANGED AT UNLOCKED PASSWORD
lo	NAME	RANGE	DEFAULT	FUNCTION
00		14	1	Number of parameters set = depends on a boiler producer.
91		OFF/ ON	OFF	Setting to ON causes the reset of all the parameters to the default a restart of the control unit
92		099999	0000	"0000" PASSWORD DISABLED

The value ON causes adding diagnostics screen helpful to the service

Password



99

The changes of important parameters are possible only at unlocked password. To unlock the password you need to input proper sequence of digits with the buttons "+/-". With the CHOOSE button to change the digits position and CONFIRM button to acknowledge all and finish the procedure of changing the password. The unlocked password is set to "0000". Once again entering into the password change procedure causes a new password to be set.

PASSWORD "9999" HAS CONSIDERABLE MEANING. IT CAUSES THE REACTIVATION OF THE PREVIOUS PASSWORD IF PRESENT WITHOUT IT BEING DISCLOSED.
PASSWORD OF PRODUCER'S SERVICE IS UNIQUE AND IS NOT DEPENDENT ON THE USER'S PASSWORD- IT SHOUDN'T BE DISCLOSED TO THE USER. INSTEAD OF THAT THE SERVICE CAN SET TO THE USER HIS OWN PASSWORD.

Examples of passwords:

OFF/

ON

OFF

1. The control unit is installed with the unlocked password. The user can enter his own password e.g. "1234". From this moment the important parameters cannot be altered without the password being unlocked (that is, resetting the password "1234"). After changing essential parameters the user can leave the control unit unlocked, set any new password or enter "9999", which activates the password "1234"

2. Producer gives the control unit with the set password. The user cannot alter the important parameters. The servic can change the settings with its own secret password. At the end a serviceman enters the secret password or "9999", the user still hasn't access to the important parameters.

3. Producer gives the control unit with the set password. The user cannot alter the important parameters. The servic can change the settings with its own secret password. At the end a serviceman leaves the control unit unlocked, the user now has access to the important parameters. He can enter his own password like in the example No. 1.

4. Producer gives the control unit with the set password. The user cannot alter the important parameters. The servic can change the settings with its own secret password. At the end a serviceman sets the password e.g. "1234" and tells it to the user, the user has access to the important parameters but without knowing the password the other persons cannot make the changes.

5. The user has the unlocked control unit or his own password. Serviceman decides, the user though oughtn't have access to the important parameters. The serviceman locks the control unit with his secret password, which removes the user's password and locks the control unit.

6. Serviceman doesn't have to know the user's password. Always he can use his own secret password and at the end lock with the "9999", which reactivates the user's password.

	LEVEL OF PARAMETERS 2 PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD							
No	NAME	RANGE	DEFAULT	SETTING	FUNCTION			
30	Control- BLOWER	ON/OFF ADJUSTA- BLE REG1 REG2	ADJUSTABLE		Adjusting the blower control to the motor type: ON/OFF-operation without adjustable rotation ADJUSTABLE- typical motors REG1- motors type RV-14 REG2 - motors type WPA-07			
31	Max- Motor- Speed	10100%	100%		Motor rotation that defines maximum efficiency of the blower. All the other settings regarding the blower are in relation to this value (e.g. if <31>=85% and on the display the efficiency is 100% it means the motor reached the level <31>=85% of its maximum power.			
32	Hysteresis- BLOWER	110 °C	2 °C		Hysteresis of turning on the blower operating without adjustable rotation, that is, at <30>=ON/OFF			
38	ZoneOf- Control	210 °C	5 °C		Ranges of boiler temperature that correspond to adjustable rotation.			
39	RangePID	0100%	100%		Impact of the PID algorithm on the control of the blower. 0% means switching off the PID			
4X	pumps							
41	T.onPumpCH	3080 °C	42 °C		Minimal boiler temperature at which the CH pump (P1) can run.			
42	T.onPump- WAW	3080 °C	42 °C		Minimal boiler temperature at which the WAW pump (P2) can run.			
44	TimeStop- PumpCH	130mins	4mins		Break time of the CH pump in a mode of cyclical run. After that time the CH pump runs for 45secs.			
45	Hysteresis- PUMPS	110 °C	1 °C		Temperature hysteresis of turning on/off the pumps. The temperature difference between turning on and turning off the pumps. It prevents often switch-overs, especially if there's another source of heat in the heating system			
46	Rundown- TimeWAW- pump	0300secs	30secs		Rundown time of the WAW pump. Extending operation time of the pump after loading the WAW. It prevents sudden increase of temperature in the jacket of the boiler after loading, especially in summer time when the CH pump doesn't run.			
5X 54	WAW DeltaWAW	110 °C	5 °C		Minimal temperature difference between the boiler and the WAW accumulator needed for operation of the WAW pump (P2)			
6X	mixer	FLOOD /	FLOOD					
60	ModeMIXER	HEATER/ RETURN	FLOOR		Choose of mode in which the mixer valve works			
61	TempALARM- FLOOR	3050 °C	40 °C		Switching on the alarm after exceeding temperature of floor system			
64	MIXER- insensibility- Zone	0,03,0 °C	0,5 °C		in range of small deviations from the preset temperature that is +/- $0,5^{\circ}$ C the valve doesn't react.			
65	MIXER- controlZone	120 °C	5°C		If the deviation from the preset temperature is smaller than $+/-0.5^{\circ}$ C the valve is overcontrolled in a cycle of 20secs, that is, every 20secs the drive switches on for a time proportional to the deviation. The bigger deviation causes a constant control of the drive.			
66	MIXER- dynamics	10100%	100%		Reaction speed of the valve. Must be decreased if the system is unstable			



Fig.5 Alarm screen 8.2 Screen of boiler operation

The screen features current temperature of the boiler and rotation of the blower



The fine coal CH (central heating) boiler operates in the following cycle: fire-up, operation, burnout:

Phase 1-Fireup (the OPERATION diode blinks) is launched by pressing the F2 bbutton. Transition to the next phases follows automatically. The control unit switches on the blower. It causes fine coal to fire up and temperature of the boiler to gradually increase. Reaching 35°C ("<22>TempSTOP_BOILER") ends the fireup phase. The time of the fireup phase is restricted to 2hrs. If the temperature doesn't increase the control unit goes to the burnout phase. In the fireup phase you can at any time turn off the boiler by long pressing the F2 button (2 secs at least).

The control unit skips the fireup phase and automatically turns on the boiler if water temperature is above $35 \,^{\circ}$ C after switching on the power.

In **the phase II - Operation (the OPERATION diode shines)** the control unit keeps up boiler temperature at the preset level. If boiler temperature is below the preset level the blower switches on (the rotation of the blower is automatically adjusted). The increase of temperature above the preset level switches off the blower. In this state the scavenges of the boiler will be realized (acc. to the settings) in order to get rid of combustion gas.

During operation of the boiler you can press the F2 button (longer press approx. 2 secs is required). It causes the blower to turn off for a while e.g. to clean up the furnace. The state is indicated by fast blinking OPERATION diode. After 30mins the control unit automatically restores to normal operation. The break in operation of the blower can be shortened by pressing again the F2 button.

Temperature drop below $35^{\circ}C(\langle 22 \rangle_{,,} TempSTOP_BOILER'')$ begins **phase III (Burnout)** of the boiler. If for $45mins (\langle 23 \rangle''TimeSTOP_BOILER'')$ temperature doesn't increase then the blower turns off and the boiler operation cycle finishes. The burnout is indicated by the blinking OPERATION diode (after the work of the boiler ends the diode goes out).

In the burnout phase you can at any time turn off the boiler by pressing long (2secs at least) the F2 button. On the display in the field "Icons of additional data" (Fig.6) the corresponding icon shows up. It represents the current state of the boiler as follows:



Burnout phase



Fireup and operation phase

The preset temperature of boiler operation (Fig.6) can be changed by activating the room thermostat (-) or during loading the WAW accumulator (+). The corresponding icon and sign +/- instead of ,, °C" inform about that:



The room thermostat informs about reaching a comfortable temperature. The signal for lowering the preset temperature.



The need for increasing the preset temperature while loading the WAW (SPEC mode)

If the preset temperature is not modified by one of the above mentioned situations then you can change it easily by pressing the CONFIRMATION button (6). The preset temperature begins blinking, you can alter it with "+" (4) or "-" (5). You confirm the changes by pressing again the CONFIRMATION button.

Pressing the F1 button enables the change of the basic parameters of boiler operation (acc.to the rules described in Ch.8.6):

Sector Sector Control of the Boiler
Sector Secto

@<34>,, TimeSCAVENGE" scavenge time

@<33>,,BreakSCAVENGE"- scavenge break

C<29>,, *TempTHERMOSTAT*"- preset temperature of the boiler in case of room thermostat operation



			Lł	EVEL OF PA	ARAMETERS I
No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
3X	blower				
33	Break- SCAVENGE	210mins	3mins		Pause of the scavenge
34	Time- SCAVENGE	560sec	s 10secs		Time of the scavenge
35	Efficiency- SCAVENGE	50100%	100%		Maximum efficiency of the blower achieved at scavenging
4 X	pumps				
5X	WAW				
50	ModeWAW	OFF/ SUMMER/ ON/ PRIO/ SPEC	ON		OFF- loading the WAW accumulator switched off SUMMER - only loading the WAW, CH pump turned off ON- normal operation of the WAW and CH pump PRIO- WAW priority (during loading the CH pump runs cyclically SPEC- like PRIO, additionally while loading increasing boiler temperature to the value of <53>
51	TmaxWAW	3090 °C	60 °C		Maximum temperature of the WAW accumulator. Exceeding it turns off the loading pump
52	TminWAW	3090 °C	50 °C		Minimum temperature of the WAW accumulator. Exceeding it turns on the loading pump
53	TloadWAW	4090°C	65 °C		Preset temperature of the boiler automatically set in case of loading the WAW accumulator in SPEC mode
6X	mixer				
62	Temp- MIXER	2090 °C	40 °C		Preset temperature of the mixer operating in HEATER or RETURN mode
62p	Temp- FLOOR	2040 °C	25 °C		Preset temperature of the mixer operating in FLOOR mode

LEVEL OF PARAMETERS 2 PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD				
AME	RANGE	DEFAULT	SETTING	FUNCTION

INO	NAME	KANGE	DEFAULI	SETTING	FUNCTION
2X	boiler				
21	Temp-	7595 °C	90 °C		Boiler temperature at exceeding of which
	ALARM-				the alarm activates
	BOILER				
22	Temp- STOP- BOILER	2045 °C	35°C		Temperature below which the boiler turns off in the state of automatic operation, that is, transition to the stop state Turning off follows if for 45mins (<23> parameter) the ' state remains active.
23	Time- STOP- BOILER	1060mins	45mins		The time of keeping up temperature <22> after which ' the transition to the stop state follows.
3X	blower				

-13-

LITHE PARAMETERS ADJUST THE CONTROL UNIT TO THE FEATURES OF THE BOILER AND THE CH SYSTEM. THEIR CHANGE SHOULD BE CONSULTED WITH THE PRODUCER OF THE BOILER OR THE INSTALLER. INCAUTIOUS CHANGES MAY CAUSE UNSTABLE AND INEFFICIENT OPERATION OF THE SYSTEM

The parameter number plays an additional role. It explicitly identifies the

name e.g. for different language versions.

<u>Demonstration change of the <51> "TmaxWAW" parameter</u> that defines the maximum temperature of the WAW accumulator (level of parameters 1).

Press:

*press repeatedly CHOOSE till the "Level of Parameters 0" parameter setting screen shows up.

*,,CONFIRM" button > ,,0" starts blinking

* Button "+" -> ,,1" blinks

*,,CONFIRM" button -> ,,1" stops blinking (Level of Parameters 1 was chosen) *repeatedly ,,CHOOSE" button -> till the <51>,, TmaxWAW" parameter shows up *,,CONFIRM"button -> actual value to be changed begins blinking

*,,+"/"-,, -> setting a new value

*,,CONFIRM" -> confirming the new value

*repeatedly "CHOOSE" button till the "***" parameter end setting screen appears.

LEVEL OF DADAMETERS

9 The parameters

			LI	EVEL OF PA	INAMETERS 1
No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
10	Signal	OFF / ON / ON+ ALARM	ZAŁ+ ALARM		OFF- turning off sound alarm ON - turning on the sound ON+ALARM- turning on the sound and alarms
11	Language	Polish/ English / German	Polish		Choose of language of messages
13	Backlit LCD	OFF/ ON	OFF		OFF - backlit display is active for 2mins since last pressing a button ON - backlit display is active always when the control unit is on. Switching off the backlighting means it gets the value defined by the next parameter <15>
15	Minimum backlit LCD	025%	10%		Minimum LCD backlighting (it's valid at the negative LCD) The value "0%" means a full switch-off
2X	boiler				
20	TempBOILER	4090 °C	55 °C		Preset temperature of the boiler kept up by the control unit
29	Temp- THERMOST AT	4085 °C	45°C		Preset temperature of the boiler with the room thermostat, that is, the temperature to which the control unit swirches over the boiler in case if the room thermostat decides about switching off the heating. ATTENTION: this parameter has to be higher than the switch-off temperature of the boiler.

Pressing the F1 button enables the change of the basic parameters of the WAW accumulator (acc.to the rules described in Ch8.6/page12):

< 51 > ,, *TmaxWAW*" temperature of the WAW accumulator that ends the loading cycle

< 52 > ,, *TminWAW*" temperature of the WAW accumulator that begins the new loading cycle

#<53> "TloadWAW" boiler temperature in case of loading in the SPEC mode

By pressing the F2 button you can easily change the setting <50> "*ModeWAW*" that decides about the strategy of loading the WAW accumulator. On the display the corresponding icon shows up as follows:



OFF- WAW pump switched off. You can run the CH pump.



SUMMER - CH system switched off in summer time (Ch pump doesn't run). The boiler only works in the preparation function of the WAW



ON - normal operation (parallel operation of the pumps) without favoring the WAW circuit



PRIO - faster reaching the readiness of the WAW accumulator by restricting the reception of heat by the heating system. The CH pump runs cyclically. Turning off the WAW pump after loading the WAW accumulator causes normal operation of the CH pump to come back.

SP

SPEC- pumps run like in the PRIO mode. Additionally during loading the WAW accumulator the preset temperature of the boiler is increased to 65° C (the <53>TloadWAW parameter)

8.4 Screen of mixer operation in heater or floor system



Fig.8 Screen of mixer operation (heater, floor system)

"Direction of valve movement" \uparrow means opening the valve in direction of increasing temperature at the output (respectively \downarrow - lowering). If the valve drive runs, the arrow blinks. Lack of the arrow means in the next cycle the valve remains motionless.

In the SUMMER mode (mixer turned off) the preset temperature doesn't show up.

Pressing the F1 button enables the change of the basic parameters of the mixer (acc.to the rules described in Ch8.6) as follows:

<62> "TempMIXER" or in FLOOR mode <62p> "TempFLOOR" the preset temperature of the mixer.

By pressing the F2 button you can transition to manual operation in order to test the correctness of mounting and operation of the valve.



Fig.9 Screen of mixer operation (heater, floor) in manual mode

Annual operation is restricted in time. It ends automatically after 2 mins since last pressing the F1 button

8.5 Operation screen in safety system of boiler return temperature



Fig.10. Screen of mixer operation (protection of the return temperature)

"Direction of valve movement" ↑ means opening the valve for the return water from the

CH system (respectively \downarrow - closing the return water and mixing it with the water from the boiler to increase the return temperature)).

If the valve drive runs, the arrow blinks. Lack of the arrow means in the next cycle the valve remains motionless. Pressing the F1 button enables the change of the basic parameters of the mixer (acc.to the rules described in ch.6.6):

 $\#{<}62{>}"TempMIXER" \text{-} preset minimal temperature of the boiler return}$

By pressing the F2 button you can transition to manual operation in order to test the correctness of mounting and operation of the valve.



Fig.11 Screen of mixer operation (protection of the return temperature)- Manual mode

Manual operation is restricted in time. It ends automatically after 2 mins since last pressing the F1 button

8.6 Screen of setting the parameters

On the first screen of the parameters the text "Level of Parameters" is shown. The text has a value of "0" that means the parameters are not available. After changing the level to "1","2" or "3" the following screens show parameter values. The last screen includes "****" after which the setting of the parameters ends and the return to normal operation follows.

