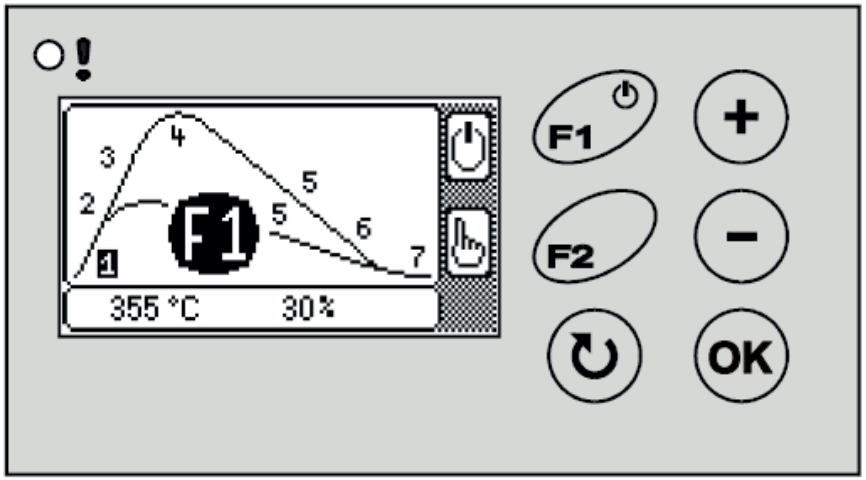
USER MANUAL

software ver. 2.0 (03.11.2016 software v2.0)

STOVE GX (RT-08GX)

COMBUSTION OPTIMIZER OF WATER BUFFER STOVE



TATAREK Sp. z o.o.
50-559 Wroclaw, 75 Swieradowska st.
ph. (071) 367-21-67, 373-14-88, fax 373-14-58; VATIN 899-278-63-72;
Bank account: BZ WBK S.A. WROCLAW 6910901522-0000-0000-5201-9335
www.tatarek.com.pl.; E-mail: tatarek@tatarek.com.pl

WARNING!!!

WE INFORM THAT THE OFFERED CONTROLLER CAN BE ONLY APPLIED TO THE RIGHT DEVICES. THE REQUIREMENTS OF THE TECHNICAL AND BUILDING STANDARDS CONCERNING THE CORRECTNESS OF STOVE AND HEATING SYSTEMS HANDLING THE STOVE INPUTS MUST BE MET.

WRONG USAGE OF THE CONTROLLER CAN LEAD BOTH TO ITS DAMAGE AND IN EXTREME CASES TO THE DAMAGE OF THE STOVE INPUT AND HEATING SYSTEM OPERATED BY THE STOVE AS WELL , ALONG WITH THE DEVICES THAT COOPERATE WITH THE HEATING SYSTEM.

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Admission date	Realization date	Signature	Remarks

PRODUCENT ZASILACZY SIECIOWYCH

ISO 9001: 2000

CE CONFORMITY DECLARATION

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

We, TATAREK Ltd.
75 Swieradowska St. , 50-559 Wroclaw

declare under our sole responsibility that

the following controller: COMBUSTION OPTIMIZER

model: RT-08GX

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 control units for house usage and the like. Part 2-1: Specific requirements regarding electric control units for electric house devices**
PN-EN 60730-1: 2012 -	**Automatic electric control units for house usage and the like. Part 1: General requirements.**
PN-EN 55022: 2011 -	**Electromagnetic compatibility (EMC)- IT devices Characteristics of radioelectric noises. Acceptable levels and measurement methods**

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

The last two digits of the year in which the CE marking was affixed: 12

Place of issue:

Wroclaw

Date of issue:

17.09.2012

Manufacturer representative:

Mirosław Zasępa

Position:

Electronics designer

1.Basic technical parameters

Power	230V/50Hz
Back-up power	rechargeable battery 4,8V/60mAh
Power consumption without load	5W
Maximum connecting power	500W
Operation conditions	0-40°C, humidity 10-90% no condensation
Housing protection class	IP41
Fuse	3,15A/250V
Number of relay outputs	3 x 250W/230V/50Hz max.
Number of outputs to control the air damper drive	1 * 5V/500mA/DC
Number of temperature sensors of flue gas	1 * Thermocouple type K (up to +1200°C , depending on the design)
Temperature measurement precision	5°C, resolution 1°C
Number of temperature sensors of water	3 * KTY81 (0...+120°C) precision 2°C, resolution 1°C
Sensor of the door	reed relay or mechanical

2. Principle of Operation

With the air damper the optimizer controls the combustion process and maintains the embers phase. Thanks to giving doses of air according to the combustion curve, you achieve a clean and optimum combustion process. The optimizer starts operating as the furnace door closes (sensor of opening the door), supervises the combustion process, shuts off air supply if there's the embers phase in the furnace. The optimizer also manages a process of transferring heat from the water jacket/water booster to the buffer and CH system.

! Additionally the optimizer can control ventilation, draught generator or heat storage mass in one of the following configurations:

CONFIGURATION	Pump loads the buffer	Laddomat in a system of loading the buffer
Kitchen hood/ventilation	CONFIG=**1**	CONFIG=**2**
Controlled flap of the water booster	CONFIG=**3**	CONFIG=**4**
Draught generator	CONFIG=**5**	CONFIG=**6**
Controlled flap of the storage mass	CONFIG=**7**	CONFIG=**8**

The optimizer is equipped with its own backup power supply. The pause in power supply up to 8secs doesn't affect optimizer operation because during that time the buffer power supply switches on. If the pause is longer the air damper opens up in emergency and then the optimizer switches off.

Advantages of the combustion optimizer:
-extending of combustion process
-decreasing of fuel consumption
-extending of exploitation time of stove input
-shutting off of air supply after ending the combustion (preventing the furnace cool-off)
-optimum use of heat storage module
-optimizer can limit the maximum temperature of the combustion

3. Control of Combustion

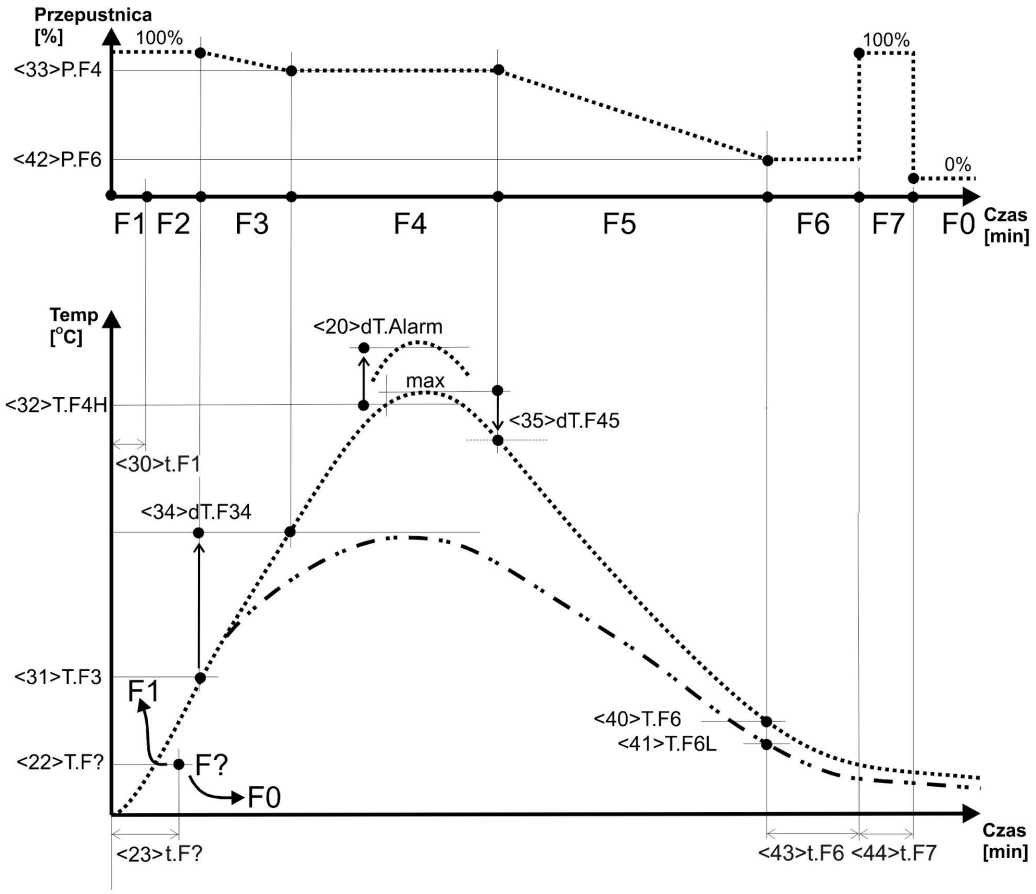
3.1 Sensor of combustion temperature

The combustion sensor is a thermocouple type K, which can detect temperatures in a range of 0°C to 1200°C (depending on structure). The sensor is to be mounted in a special socket found in the upper part of the combustion chamber or along the path of flue gas.

3.2 Operation phases of the optimizer

The most important parameters of the combustion process are depicted on the following diagram:

Krzywa spalania GX z zaznaczonymi parametrami regulacji



WARRANTY

1.Warranty is valid [24] months from the date of sale.
2.Manufacturer does not take responsibility for any mechanical damages made by user.
3.MAKING REPAIRS OR MODYFYING THE OPTIMIZER BY USER IS FORBIDDEN AND CAUSES WARRANTY CANCELLATION
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 manufacturer, damaged optimizers should be sent to the manufaturer in order to make all repairs needed.
6.Warranty protection includes the EU
7.Warranty does not exclude, not restrict and not suspend buyer's rights coming from the incompatibility of the product with the agreement (Laws Journal No. 141 Pos. 1176)

WARNING !

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

Connection cable of the optimizer may be replaced only by manufacturer or his authorized service locations

WARNING!
1. Manufacturer 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 and electric devices must be transfered to the utilization collection place where they will be accepted for free

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Mounting Recommendations

For the right mounting the following tools are required:
- electrically insulated screwdriver 2,5mm with flat tip
- electrically insulated screwdriver 2,5mm with X-tip No. 0

Useful can be as well:
-pliers with thin tips and electrically insulated handles

Recommended cables for connecting peripheral devices to the optimizer:
- The power supply cable: cable 3 x 0.75 mm²
- The air damper cable: 3 x 0,5 mm² , default length: 3 m (extension is not recommended)
- Connecting cable of pumps: 3 x 0.75 mm²
- Connecting cable to the terminal CONTROL: min. 2 x 0.5 mm² (without limitation)
- Water sensor KTY81: 2 x 0,5 mm² ,length: 3 m (max. extension up to 25 m) , up to 10 m with no difference in the temperature readout.

While extending the supplied water temperature sensors, be sure to properly make their connections. The connections are recommended to be rigid-soldered with correct wire polarity and proper insulation of the connection itself.

Important installation instructions:

The installation of the optimizer should be carried out with care, taking into consideration safety rules (electric device) and being very cautious while screwing down the contacts of the connection block of the optimizer during wiring the cables so as not to lead to their mechanical damage as an effect of using too much force.

IMPORTANT!

Before assembling the whole equipment you should make the inspection holes in the stove housing ,which will provide a simple and uncomplicated access to the peripheral hardware of the optimizer ,that is, the air damper (PP) and temperature sensors (T1 and T2). This will allow in the future to make a periodic review of the cleanness of the wing of the air damper, as well as provide seamless access to the sensor in case of its failure or damage.

GROUND CABLE HAVE TO BE CONNECTED TO THE OPTIMIZER!!!

!► The optimizer should be located close to the stove so as to offer a continuous overview of parameters in terms of the operation of the system and thanks to that a fast indication of any failure of the system.

!► In order to protect the optimizer against too high temperatures around the stove input- the optimizer should not be mounted in the casing itself of the stove except for places intentionally prepared in terms of temperature protection.

Too high temperature of the ambience of the controller might eventually lead to the deterioration of the life of some components and therefore to their premature failure.

!► The air damper shouldn't be mounted closer than 1 m from the air inlet to the inflow channel on account of protecting it against too high temperature.

!► Before installing all the equipment you have to leave the revision openings in the casing of the stove itself, which ensures a simple access to the peripheral devices of the optimizer (cold air damper (PP) and temperature sensors T1 and T2). It allows in the future to cyclically check the state of the air damper's wing and a simple access to the temperature sensor in case it failed or was damaged.

! The following parameter convention has been assumed e.g. <22> T.F.? = 45°C indicating that the parameter No. <22> with the name "T.F.?" (Temperature of restart after power is turned on) is set to 45 °C.

! The basic parameter, which matches the theoretical curve of combustion to the real conditions, is **<32> T.F4H "typical maximum temperature of combustion for the stove "**. This parameter should be specified by the stove / input manufacturer .

The optimizer controls the combustion process in the following cycle:

- **F0** : **Rest phase**. The optimizer waits for the start of burning, i.e. opening the furnace door. In the phase F0 the air damper is closed.
- **F?**: The intermediate phase after powering on. The optimizer opens the air damper and checks the stove temperature. If the furnace is hot (stove temperature is above <22> T.F.? = 45 ° C), then the optimizer automatically starts a cycle of burning by going to F1. If the temperature is below <22> T.F.? = 45 ° C , the optimizer waits for the time <23> t.F? = 2min for the temperature to rise. If not, the optimizer closes the air damper and sets the F0 phase.
- **Fx**: Opening the door. Opening the door in order to avoid smoking. Closing the door starts the burning cycle.
- **F1**: Start phase . After loading the wood and its lighting, you get the furnace door closed . This is a signal to the optimizer that the combustion cycle started. The air damper is open. For the time <30>t.F1 = 5min the optimizer waits for burning out the kindling and then it lights the wood and afterwards proceeds to F2. From the F2 phase the next phases depend on the temperature of combustion.
- **F2**: Firing-up phase. After heating up the chimney and reaching the limit temperature <31> T.F3 = 200 °C the firing-up phase is considered to be completed. This takes you to the F3 phase
- **F3**: Phase of temperature rising. The damper is being slightly closed up depending on the temperature. In the middle of the increase in temperature between T.F3 and T.F4H (<34> dT.F34 = 50%) ,i.e., 300 °C the optimizer goes over to the actual combustion phase F4.
- **F4**: Combustion phase. The air damper is set to a constant value of <33> P.F4 = 90%. The optimizer sets the maximum temperature of combustion and then waits for the drop in temperature by <35> dT.F45 = -60 ° C to signal the end of that phase.
- **F5**: Afterburning and decreasing temperature phase. The air damper is gradually closed up to <42>P.F = 10% . The afterburning phase ends after reducing the temperature to <40> T.F6 = 230 °C.
  If there is no F4 phase, i.e., the combustion temperature did not exceed the limit of <34> dT.F34, the optimizer uses the lowered combustion curve with the end condition of <41> T.F6L = 130 °C.
- **F6**: Embers phase. The signal for the need to refuel if the burning is to be continued. The embers phase takes time equal to <43>t.F = 10min.
- **F7**: Phase of removing flue gas. The optimizer opens the air damper for <44> t.F7 = 1 min and then closes it and goes over to the rest phase F0.

! The optimizer can control a stove without the door sensor. In that case, the buttons on the control panel of the optimizer are used.

3.3 Limiting of the maximum combustion temperature

For stove inputs, whose construction requires limiting the maximum temperature of combustion, it is possible to program the limit <20> dT.Alarm - allowable temperature rise. above the typical combustion temperature. "

E.g. at <32> T.F4H = 400 °C and <20>dT.Alarm = 40 °C if combustion temperature exceeds 400 + 40 = 440 °C it will cause closing up the air damper to <21>P.Alarm = 20% and switching on alarm. Switching off alarm and reverting to normal operation of the air damper occur if the temperature drops again.

3.3 Air damper

The air damper is mounted on the supply inlet of cold air into the combustion chamber.The optimizer calculates the air damper position depending on the combustion process.

! The optimizer displays the preset air damper position in %, where 0% means full closing and 100% full opening. The current position of the air damper can be different for a while because the drive updates the position in cycles of 5-20 seconds <26> t.P.

! If power fails, the combustion process is not controlled. To prevent the possibility of increased concentration of CO (toxic fumes) in case of incomplete combustion before reaching the embers phase , the optimizer is equipped with its own backup power supply - power failure up to 8 seconds does not interfere with its work (at that time the buffer supply may switch on), if the interruption lasts longer then before turning off, the optimizer will set the air damper opening in a range of 20 ... 100% according to the parameter setting <25> P.Err.

4. Control of hydraulic system

The generated heat in the stove, thanks to the water jacket or the water booster, is transferred to the buffer. By controlling the combustion process, the water temperature in the stove and in the upper and lower part of the buffer, the optimizer controls the buffer pump or a more powerful system with Laddomat. The buffer can be connected to the circulating pump, which transfers accumulated heat to the rest of the system. The circulating pump turns on if:

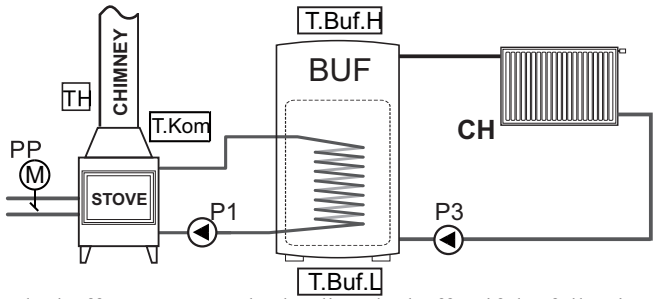
✷ · Temperature of the upper part of the buffer is higher than **<66> T.P3** = 40 ° C.

! Laddomat contains an internal water thermostatic valve, i.e., the optimizer controls it as a function of combustion temperature.

!Variant Laddomat i.e., depending on combustion temperature. It can also be applied to the buffer pump if the water jacket heats up quickly and unevenly.

! Failure of one of the temperature sensors of water in the buffer switches the system over to the simplified operating mode. There's no distinction between the upper and lower zone and there's only 1 common zone measured by a good sensor.

4.1 System with the buffer pump



PP- air damper
P1- buffer pump
P3- circulating pump
TH- temperature sensor of combustion
T.Kom- temperature sensor of stove water
T.Buf.H- upper temperature sensor of the buffer
T.Buf.L- lower temperature sensor of the buffer

The buffer pump runs by loading the buffer if the following conditions are met:

- The process of combustion is under way, i.e., the combustion temperature is above **<50>TS.P1** = 80 °C
- Water temperature in the stove is higher than **<51>T.P1** = 45 °C
- Water temperature in the stove is higher than in the lower part of the buffer by **<52> dT.P1**= 3 °C
- Moreover, if the combustion ended but
- Temperature in the stove is approaching the alarm value **<17> T.KOM.max** = 95 °C by less than 10 ° C

! Switching-over of the devices P1..P3 is controlled additionally by temperature and time hysteresis (see descriptions of parameters)

Change of Operation Parameters of Optimizer

After switching on the optimizer it will operate on averaged defaults that are indicated in the tables of parameters settings. The tables also include the most important data for the user of the optimizer The change of any parameter is done with the 4 buttons on the main panel of the optimizer and if you want to change the chosen parameter from the table you need to follow the following tips:

1. ↻ You click the SELECT button until the PARAMETERS LEVEL screen along with the value "0" shows up
2. OK You confirm the intention of changing the parameters with the SET button, then the value "0" begins blinking.
3. + You click the + button several times depending on the parameter you want to change. The double click transitions you to the second level. The digit "2" begins blinking.
4. OK The selection of the chosen level of the parameters must be confirmed by the SET button. The digit "2" lights steadily.
5. ↻ By clicking the SELECT button you go through the parameters and values of the chosen level. For example if you want to change the power for the first program P1 by changing the temperature for this program - you click repeatedly the SELECT button until the description of the needed parameter appears (in this case "T.F 3/1")
6. OK You confirm the intention of changing this parameter by clicking the SET button, and then the digit readout, which indicates the temperature for this program , starts blinking (the default 250°C)
7. You change this parameter with the buttons + or − The digit will be blinking all the time.
8. OK You confirm the change with the CONFIRM button
9. The changed paramater has been stored in the memory of the optimizer.

Analogously you perform the change of any parameter accessible to the user and depicted in the tables that are the most important part of this user manual.

At the beginning of using the optimizer it's advisable to write each change of the chosen parameter into the blank column of the table next to the corresponding parameter. It's gonna help in the future in choosing optimal settings in view of the system that is supplied in your building.

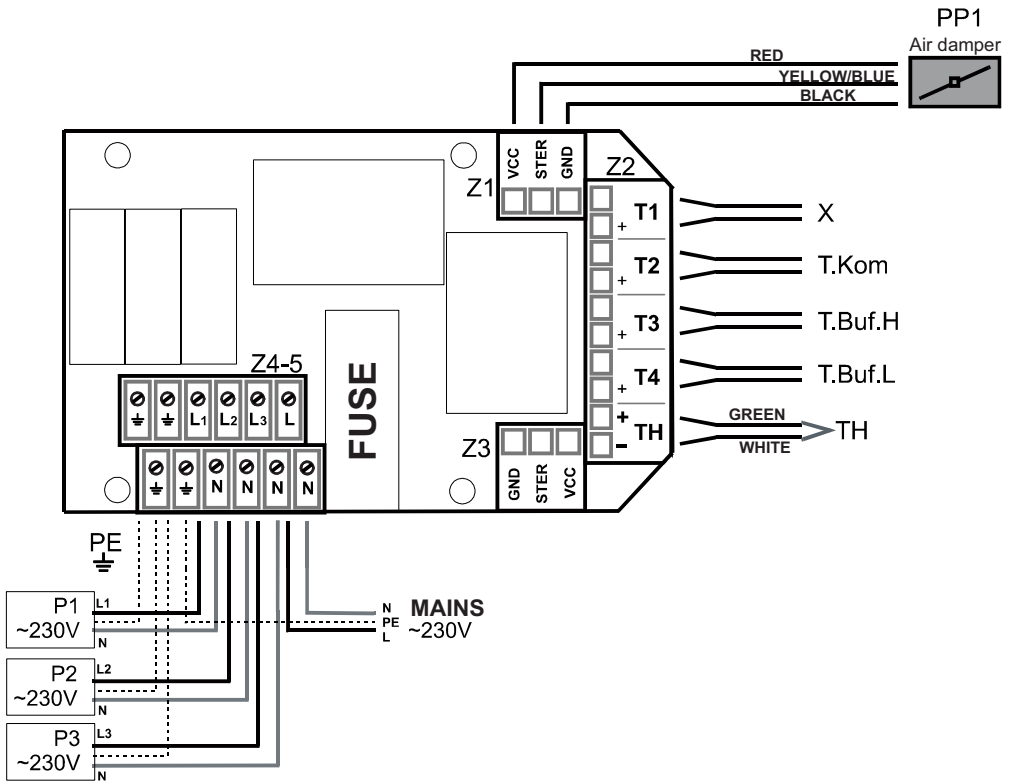
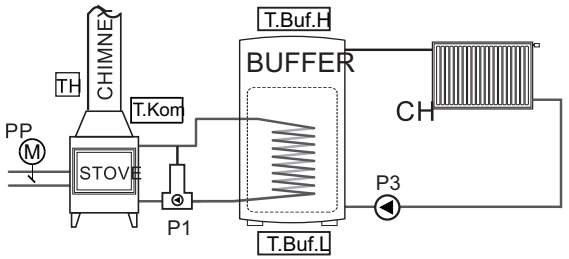


Fig.3 Wiring diagram of external devices

PP- Electronically controlled air damper TATAREK
X- Sensor of opening the furnace door
The type of sensor is determined by the parameter "<12> V.X"
-in case of the short-circuited sensor (at the closed door the terminals X are short-circuited), set <12>V.X=2.
-in case of the open-circuited sensor (at the closed door the terminals X are open), set <12>V.X=1
-lack of the door sensor, leave the terminals X disconnected and , set <12>V.X=1 or short the terminals X and set <12>V.X=2.
T.kom- Temperature sensor of the water jacket of the stove (type KTY81)
T.Buf.H- Upper temperature sensor of the buffer (type KTY81)
T.Buf.L- Lower temperature sensor of the buffer (type KTY81)

TH- Main sensor of the combustion temperature. (Thermocouple type K (the wire of higher potential is green))
P1- Loading pump of the buffer or pump of Laddomat (230VAC m 250W max)
P2- Kitchen hood-ventilation/draught generator/flap drive of the water booster/ or flap drive of the storage mass (230VAC, 250W max)
P3- Circulating pump CH (230VAC, 250W max)
FUSE- 3,15A/250V

4.2 System with Laddomat (dependent on combustion temperature)



PP- air damper
P1- pump of Laddomat
P3- circulating pump
TH- sensor of combustion temp.
T.Kom- sensor of water temp. of stove
T.Buf.H-upper sensor of buffer temp.
T.Buf.L-lower sensor of buffer temp.

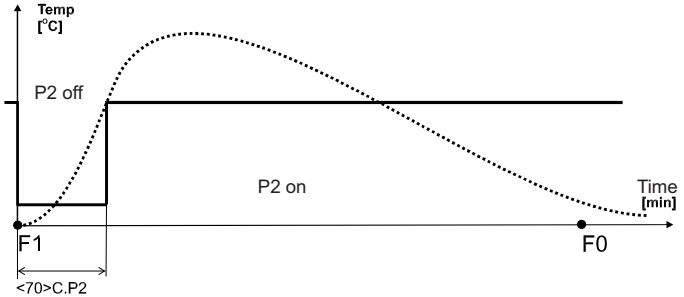
The buffer pump loads the buffer if the following conditions are met:
- · The process of combustion is under way , i.e. the combustion temperature is above TS.P1<50> = 80 °C

Moreover, when the combustion ended but
- · Temperature of the stove is approaching the alarm value <17> T.KOM.max = 95 ° C by less than 10 °C

5. Control of Additional Systems

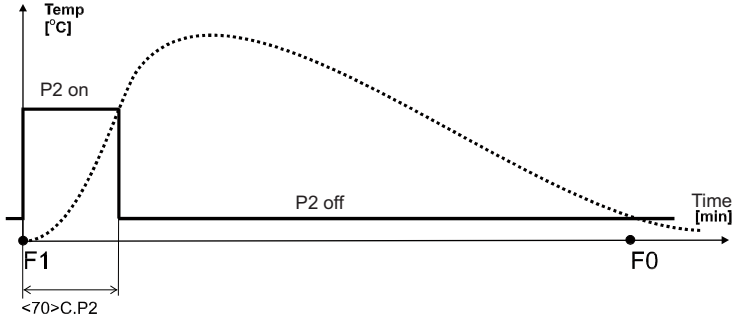
The controller is designed to control one of the additional systems

5.1 Kitchen hood or mechanical ventilation



To the P2 output is connected the kitchen hood or mechanical ventilation. The ventilation switches off after opening the door of the stove to prevent the drawing of flue gas into the room (sensor of the door is required). The ventilation switches on again after <70> t.P1 = 1 minute since the door closing.

5.2 Increasing the chimney draught (draught generator)



To the P2 output is connected the chimney draught generator. The generator switches on after opening the door of the stove (sensor of the door is required) and switches off after <70> t.P2 = 1 minute since the door closing.

5.3 Flap of the water booster WB

Instead of the water jacket, a stove can be equipped with a controlled water booster. During normal operation, when there is a demand for hot water, the hot flue gas passes through the water booster where by cooling it returns heat to water. At the time of firing up when the chimney is cold, its draught may be insufficient - the flap directs the flue gas into the chimney bypassing the water booster WB.

After completion of the firing-up phase F2, the flap drive switches on the water booster if:

- · Temperature of combustion is above **<71>TSon.P2** = 150 °C
- · Water temperature of the water booster is below **<73> Ton.P2**= 65 °C

The flap drive switches off the water booster if:

- · Temperature of combustion is below **<72> TSoff.P2**= 80 °C
- · Water temperature of the water booster is above **<74> Toff.P2** = 85 °C

Depending on the setting of <94> V.NW we have the following control options of the servo drive:

<94>V.NW = 1 : P2 is off - the flap drive directs the flue gas directly into the chimney.
P2 is on - the flap drive directs the flue gas through the water booster

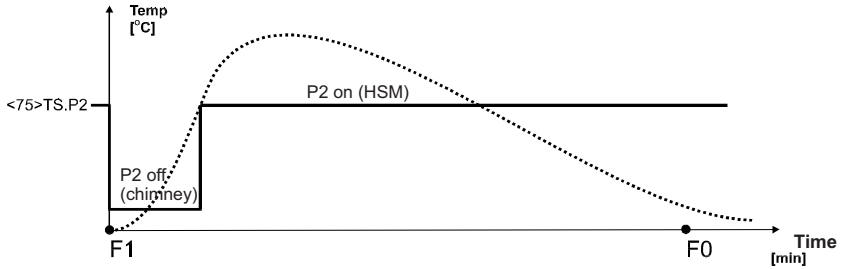
<94> V.NW = 2: P2 is off - the flap drive directs the flue gas through the water booster.
(negation 1) P2 is on - the flap drive directs the flue gas directly into the chimney.

! It is possible to disable the water booster (i.e.a permanent setting of the flap for directing flue gas to the chimney bypassing the water booster WB). Pressing the "-" (Figure 2/5) on the main screen enables / disables the water booster. (See 7.2 "Home Screen - automatic operation of the stove")

5.4 Flap of the storage mass HSM (Moritz)

During normal operation, the hot flue gas passes through the Heat Storage Module where by cooling it gives back heat. At the time of firing up when the chimney is cold, its draught may be insufficient. Using the P2 output the optimizer can control the flap servo of bypassing the HSM Depending on the servo and the setting <95> V.MAC we have the following possibilities:

<95>V.MAC=1:



In the rest mode the P2 output is turned on. The flap is directed to the HSM. The burning start activates the P1 output and directing the flue gas directly into the chimney. After completing the firing-up phase F2 and reaching the set temperature <75> TS.P2 , the flap is activated and it directs the flue gas to the HSM.

PARAMETERS OF LEVEL 5 – SYSTEM RELATED
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

NO	NAME	RANGE	DEFAULT	SETTING
91	**RESET** /default	OFF/ ON	OFF	Setting to OFF reverts parameters to their default values and the restart occurs.
92	**PASSWO-RD**	0…9999	0000 *)	„0000" OFF „----" ON
93	**CONFIG** /selection of configuration	1…8	1 *)	=1 Kitchen hood/ventilation and buffer pump =2 Kitchen hood/ventilation and Laddomat =3 Controlled flap of the water booster and buffer pump =4 Controlled flap of the water booster and Laddomat =5 Draught generator and buffer pump =6 Draught generator and Laddomat =7 Controlled flap of the storage mass and buffer pump =8 Controlled flap of the storage mass and Laddomat
94	**V.NW** /variant of the water booster operation	1…2	1 *)	See ch.5.3 „Flap of the water booster WB"
95	**V.MAC** / variant of the HSM operation	1…4	1 *)	See ch.5.4 „Flap of the storage mass (Moritz)"
98	**MAN**	OFF/ ON	ON	MANual operation is enabled.
99	**V. SERVICE** /service screen	OFF/ ON	OFF	Setting to ON activates the diagnostic screen, which may be useful for servicing.

*) Parameters whose default setting is marked *) do not change after RESET in order to not change the essential configuration settings. Any changes must be performed individually!

! Parameter number only plays a supporting role and is used to uniquely identify the name, eg. for different language versions.

Password

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 SELECT button (7) to change the digits position and SET button (6) 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.

8. Mounting the optimizer

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

! THE OPTIMIZER HAS TO BE CONNECTED TO THE MAINS WITH THE ZERO-PIN WITH USE OF .A DIFFERENTIAL DEVICE OF POWER SUPPLY SEPERATION ACCORDING TO THE BINDING REGULATIONS.

! THE MANUFACTURER DOESN'T TAKE ANY RESPONSIBILITY FOR DAMAGES CAUSED BY WRONG USAGE OF THE OPTIMIZER.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION

PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=8

(CONFIGURATION 8 - Controlled flap of the storage mass and Laddomat)

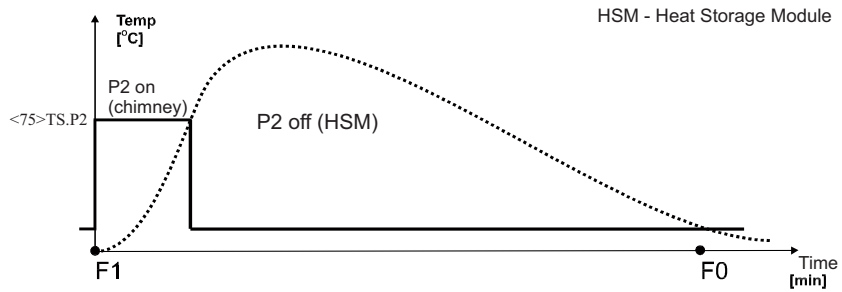
No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of Laddomat P1 turns on.
75	**TS.P2** /switch-on temp. P2	10…1250 °C	380 °C		Combustion temperature that switches the flap drive of the storage mass P2 ,i.e., the HSM (Heat Storage Module) activates.

PARAMETERS OF LEVEL 4 – SHARED

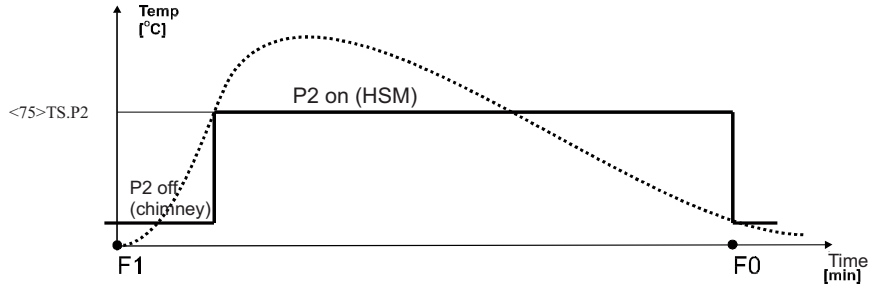
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
60	**TSh.P1** /hysteresis of combustion temp. P1	10…100 °C	20 °C		Hysteresis of burning temp. of switch-on / off of the P1 pump. P1 turns off if the temperature drops relative to the threshold by the hysteresis value
61	**Th.P1** /temp. hysteresis P1	1…10 °C	2 °C		Temperature hysteresis of switch-on / off of the P1 buffer pump. P1 turns off if the temperature drops relative to the threshold by the hysteresis value
62	**th.P1** /time hysteresis P1	0…5 min	0 min		Time hysteresis of switch-on / off of the P1 buffer pump. Minimum operation/pause time of P1 to prevent often changes.
66	**T.P3** /switch-on temp. P3	10…100 °C	40 °C		Temperature of the upper part of the buffer at which the P3 circulating pump runs.
67	**Th.P3** / temp. hysteresis P3	1…10 °C	2 °C		Temperature hysteresis of switch-on / off of the P3 circulating pump. P3 turns off if the temperature drops relative to the threshold by the hysteresis value
68	**th.P3** / time hysteresis P3	0…5 min	0 min		Time hysteresis of switch-on / off of the P3 circulating pump. Minimum operation/pause time of P3 to prevent often changes.
17	**T.KOM.max** /max water temp. in the stove	10…100 °C	95 °C		Alarm turns on above this water temperature in the stove
18	**T.BUF.max** / max water temp. in the buffer	10…100 °C	95 °C		Alarm turns on above this water temperature in the buffer
12	**V.X** /type of the door sensor	1…2	1 *)		=1 Door sensor is normally closed NC(with the door closed, the X terminals are open) or without the door sensor
					=2 Door sensor is normally open NO (with the door closed, the X terminals are shorted)

<95>V.MAC=2 (negation 1):

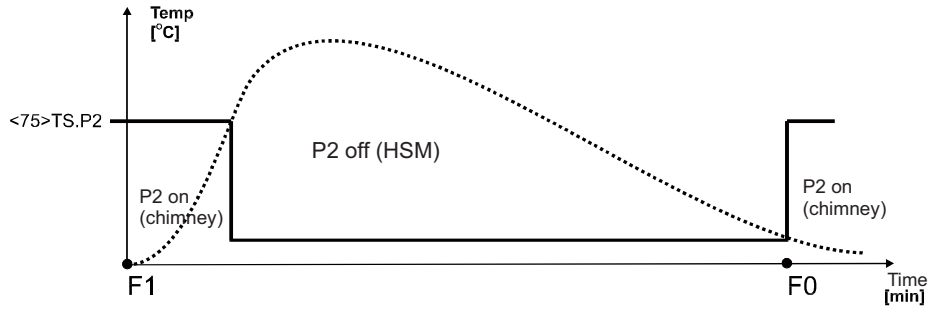


<95>V.MAC=3:



In the rest mode the P2 output is off. The flap is directed to the chimney. After completion of the firing-up phase F2 and reaching the preset temperature <75> TS.P2, the flap is activated and directs the flue gas to the HSM. After completion of combustion, P2 is turned off. The flap is re-directed to the chimney.

<95>V.MAC=4 (negation 3):



6. Selection of Configuration

Depening on the <93>CONFIG parameter the optimizer works in the following operation modes:

CONFIG =1 Kitchen hood/ventilation and buffer pump
CONFIG =2 Kitchen hood/ventilation and Laddomat
CONFIG =3 Controlled flap of the water booster and buffer pump
CONFIG =4 Controlled flap of the water booster and Laddomat
CONFIG =5 Draught generator and buffer pump
CONFIG =6 Draught generator and Laddomat
CONFIG =7 Controlled flap of the storage mass and buffer pump
CONFIG =8 Controlled flap of the storage mass and Laddomat

7. Handling of the Optimizer

There are buttons on the control panel (Fig. 2) to control the optimizer. The operation status is displayed on the graphics display(2). The screens inform about operation of devices and temperature sensors. They also allow to change parameters. The change of the screen is done with the SELECT button (7).

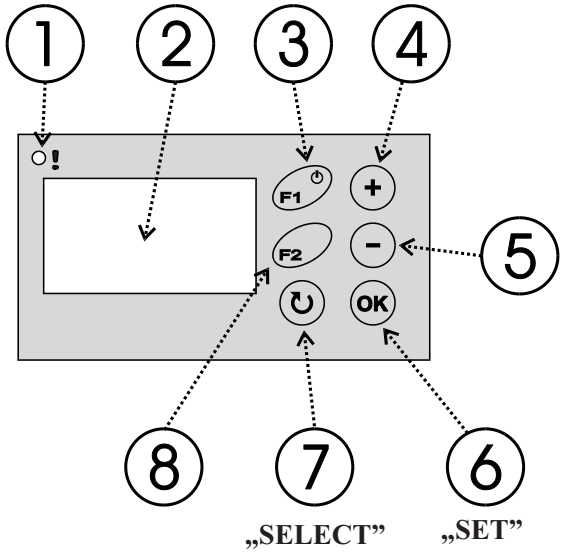


Fig.2 View of the control panel

1. Status LED of the optimizer:
   #failure - red LED
   #standby - orange LED
   #operation - green LED
   #MANUAL operation -green LED blinks
2. Graphics display
3. Functional button **F1**
4. Button to increase the value
5. Button to lower the value
6. Button to confirm the changes
7. Button to select the parameter
8. Functional button **F2**

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=5

(CONFIGURATION 5 – Draught generator and buffer pump)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of buffer P1 turns on.
51	**T.P1** /switch-on temp. P1	10…100 °C	45 °C		Water temperature in the stove water jacket at which the pump of buffer P1 turns on.
52	**dT.P1** /delta P1	-10…10 °C	3 °C		Minimum temperature difference of the stove and buffer needed for the buffer pump P1 to run. Negative values are applicable for large buffers with one temperature sensor.
70	**t.P2** /switch-on time P2	1…99 min	1 min		Timespan during which the draught generator is turned on after closing the furnace door. The setting 99min means the generator is turned on till the end of the burning cycle.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=6

(CONFIGURATION 6 – Draught generator and Laddomat)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of Laddomat P1 turns on.
70	**t.P2** /switch-on time P2	1…99 min	1 min		Timespan during which the draught generator is turned on after closing the furnace door. The setting 99min means the generator is turned on till the end of the burning cycle.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=7

(CONFIGURATION 7 - Controlled flap of the storage mass and buffer pump)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of buffer P1 turns on.
51	**T.P1** /switch-on temp. P1	10…100 °C	45 °C		Water temperature in the stove water jacket at which the pump of buffer P1 turns on.
52	**dT.P1** /delta P1	-10…10 °C	3 °C		Minimum temperature difference of the stove and buffer needed for the buffer pump P1 to run. Negative values are applicable for large buffers with one temperature sensor.
75	**TS.P2** /switch-on temp. P2	10…1250 °C	380 °C		Combustion temperature that switches the flap drive of the storage mass,i.e., the HSM (Heat Storage Module) activates.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION

PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=3

(CONFIGURATION 3 - Controlled flap of the water booster and buffer pump)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of buffer P1 turns on.
51	**T.P1** /switch-on temp. P1	10…100 °C	45 °C		Water temperature in the water booster at which the pump of buffer P1 turns on.
52	**dT.P1** /delta P1	-10…10 °C	3 °C		Minimum temperature difference of the water booster and buffer needed for the buffer pump P1 to run. Negative values are applicable for large buffers with one temperature sensor.
71	**TSon.P2** / combustion temp. P2 on	10…1250 °C	150 °C		Increasing combustion temperature above this value causes that the flap drive of the water booster directs flue gas to heat up water.
72	**TSoff.P2** / combustion temp. P2 off	10…1250 °C	80 °C		Decreasing combustion temperature below this value causes that the flap drive of the water booster directs flue gas to the chimney.
73	**Ton.P2** /water temp. P2 on	10…100 °C	65 °C		Decreasing water temperature in the water booster below this value causes that the flap drive of the water booster directs flue gas to heat up water.
74	**Toff.P2** /water temp. P2 off	10…100 °C	85 °C		Increasing water temperature in the water booster above this value causes that the flap drive of the water booster directs flue gas to the chimney (the booster stops heating water)
64	**th.P2** /time hysteresis P2	0…5 min	0 min		Time hysteresis of turning on/off a servo of the flap of the water booster. Minimum operation/pause time of P2 preventing often changes.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION

PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=4

(CONFIGURATION 4 - Controlled flap of the water booster and Laddomat)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combustion temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of Laddomat turns on.
71	**TSon.P2** / combustion temp. P2 on	10…1250 °C	150 °C		Increasing combustion temperature above this value causes that the flap drive of the water booster directs flue gas to heat up water.
72	**TSoff.P2** / combustion temp. P2 off	10…1250 °C	80 °C		Decreasing combustion temperature below this value causes that the flap drive of the water booster directs flue gas to the chimney.
73	**Ton.P2** /water temp. P2 on	10…100 °C	65 °C		Decreasing water temperature in the water booster below this value causes that the flap drive of the water booster directs flue gas to heat up water.
74	**Toff.P2** /water temp. P2 off	10…100 °C	85 °C		Increasing water temperature in the water booster above this value causes that the flap drive of the water booster directs flue gas to the chimney (the booster stops heating water)
64	**th.P2** /time hysteresis P2	0…5 min	0 min		Time hysteresis of turning on/off a servo of the flap of the water booster P2. Minimum operation/pause time of P2 preventing often changes.

7.1 Alarm screens

For operation of the optimizer it is necessary to connect the TH combustion temperature sensor and temperature sensor of water in the water jacket of the stove (or the water booster). Wrong connection or sensor failure starts an alarm sound:

- · "Failure of the TH combustion temperature sensor"
- · "Failure of Temperature Measurement (THodn)" - Failure of the internal sensor of reference temperature
- · "Failure of the temperature sensor of stove water (T.Kom)"

The optimizer also signals exceeding the maximum:

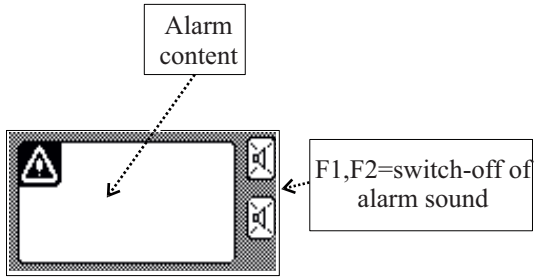
- · "Exceeding of the maximum temperature of combustion (TH) "
- · "Exceeding of the maximum temperature of stove water (T.Kom) "

Temperature sensors of the upper / lower part of the buffer are optional. The optimizer uses them to control if they are connected to, and then detects exceeding the maximum value:

- · "Exceeding of the maximum temperature of water in the buffer (T.Buf) "

! In the alarm state, the air damper opening degree is limited to <21> P.Alarm = 20%.

! The alarm of water temperature, which exceeds the limit, activates the corresponding pumps to discharge excess heat.

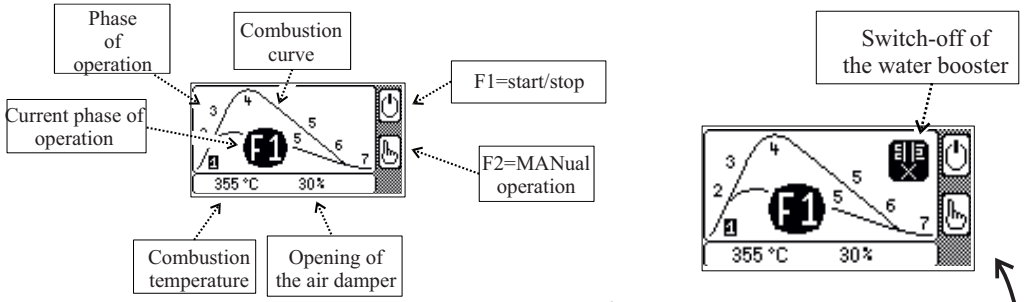


! The alarm situation is accompanied by intermittent sound signal, which can be cancelled by pressing the F1 / F2 button.

The SELECT button (7) to move to the next screen.

7.2 Home Screen - automatic operation of the stove

The screen allows to control the optimizer. On the screen is drawn a theoretical curve of combustion in two variants the "upper" one for complete combustion and the "lower" one for the case of incomplete combustion, i.e.,, if combustion temperature dropped before the phase F6. The blacked numbers of phases represent the history of the combustion process.



! When choosing a configuration with the water booster, you can disable it (i.e. a permanent setting of the flap for directing flue gas to the chimney bypassing the water booster WB). Pressing the "-" (Figure 2/5) enables / disables the water booster. If the water booster is turned off, then the following icon shows up :

! In the AUTOmatic mode each opening of the door sets the air damper to 100% and closing the door starts the burning cycle - the green LED lights up (1). If the furnace remains cold, then after the time <23> t.F? (See parameters) the optimizer closes the air damper and goes to the rest state. The optimizer behaves likewise in case of switching on power.

! Reaching of the embers phase F6 is accompanied by as follows: an irregular beep (it can be cancelled by pressing the SET button(6), blinking of the number of phase and the flame symbol and blinking of the green LED (8), which indicates the need for refueling in case of continuation of burning.

! The optimizer can operate in the AUTOmatic mode or MANual (manual control). Longer pressing of the F2 button (8) - approx. 2 seconds - switches over to the manual mode.
The SELECT button (7) to move to the next screen.

! When working without the door sensor, the keyboard is used for controlling. Pressing of the F1 button displays a menu to select one of the options:

·

• · **"START> F1"**: Start of the combustion process through the transition to the "F1" phase

• **"STOP-> F?"**: Conditional stop of the burning. Moving to the "F?" phase like after power-on. The optimizer opens the air damper and checks stove temperature. If the temperature is lower than <22> T.F.? = 45 ° C, the optimizer waits for the time "<23> t.F? = 2min" for the temperature to rise. If not, the optimizer closes the air damper and sets F0. If the furnace is hot enough, then the restart occurs by going over to the F1 phase.

·

• "****": Exit from the menu without performing any action.

Selecting of the options: with the "+" (4) or "-" (5) button. Press the SET button (6) to confirm the selection and the SELECT button (7) to leave without taking any action.

! Preferably before opening the door, select "START> F1" to open the air damper (to avoid smoking). After lighting the fuel and closing the door , select again "START> F1", which will restart the combustion cycle.

7.3 Screen of Manual Operation of the Stove (MAN)

From the main screen, you can move to the screen of manual operation. After long pressing of the "F2" button (2 sec at minimum) a menu will display to select one of the options:
• · "Only the PP": Manual control of only the PP air damper ·
• "PP + P1 ... 3 ': Manual control of the PP air damper and outputs P1 .. P3 ·
• "****": Exit from the menu without performing any action

Selecting of the options: with the "+" (4) or "-" (5) button. Press the SET button (6) to confirm the selection and the SELECT button (7) to leave without taking any action.

Switching over to manual operation, which is accompanied by the blinking status LED (1), makes it possible to take control of the combustion process. The air damper opens up to 100%. From this moment you can manually control the air damper: the"-" button (5) closes (one step 10%) and the "+" button (4) opens it.

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=1
(CONFIGURATION 1 Kitchen hood-ventilation and buffer pump)

NO	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /combusti-on temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of buffer turns on.
51	**T.P1** /switch-on temp. P1	10…100 °C	45 °C		Water temperature of the stove water jacket at which the pump of buffer turns on.
52	**dT.P1** /delta P1	-10…10 °C	3 °C		Minimum temperature difference of the stove and buffer needed for the buffer pump P1 to run. Negative values are applicable for large buffers with one temperature sensor.
70	**t.P2** /switch-off time P2	0…20 min	2 min		The switch-off time of kitchen hood-ventilation after closing the furnace door

PARAMETERS OF LEVEL 3 – ACCORDING TO THE SELECTED CONFIGURATION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

<93>CONFIG=2
(CONFIGURATION 2 Kitchen hood-ventilation and Laddomat)

No	NAME	RANGE	DEFAULT	SETTING	FUNCTION
50	**TS.P1** /Combusti -on temp. P1 on	10…1250 °C	80 °C		Burning temperature of the stove at which the pump of Laddomat turns on.
70	**t.P2** /Switch-off time P2	0…20 min	2 min		The switch-off time of kitchen hood-ventilation after closing the furnace door

PARAMETERS OF LEVEL 2-COMBUSTION
PARAMETERS CAN BE CHANGED AT UNLOCKED PASSWORD

NO	NAME	RANGE	DEFAULT	SETTING	FUNCTION
32	**T.F4H**	10…1250 °C	400 °C		Typical maximum combustion temperature for the given stove. Temperature of the combustion phase F4
33	**P.F4**	0…100 %	90 %		the degree of air damper opening at phase F4
20	**dT.Alarm**	0…300 °C	40 °C		The increase in temperature above **<32> T.F4H** causes an alarm and closes the air damper to the value **P.Alarm.** For the default setting the maximum temperature of the stove will therefore assume the value 400+40=440 °C.
21	**P.Alarm**	5…50 %	20 %		The degree of air damper opening, when the temperature exceeds the maximum value.
22	**T.F?**	10…1250 °C	45 °C		Temperature of the restart. If, after turning on the optimizer, stove temperature is higher than **<23> T.F.?,** then automatic start occurs, i.e. transition to the phase F1.
23	**t.F?**	1…10 min	2min		Restart time. If, after switching on the optimizer, stove temperature is less than **<23> T.F.?** then during this time the optimizer awaits the decision of the transition to the rest phase F0
30	**t.F1**	1…30 min	3min		Delay of starting the regulation (the duration of the phase F1)
31	**T.F3**	30…1250 °C	200 °C		Switch-on temperature of the phase 3. Its reaching means positive conclusion of the firing-up phase.
34	**dT.F34**	10…90 %	50 %		Switch-on temperature of the phase F4 (complete combustion). Temperature is set as a percentage value between T.F3% and T.F4H. For default settings: T.F3=200°C, T.F4H=400°C dT.F34 = 50%, F4 thus begins from 300°C. If that temperature is not reached, then this F4 phase will be skipped and control occurs according to the lowered combustion curve.
35	**dT.F45**	-10…-300 °C	-60 °C		The decrease in temperature in relation to the maximum one in the F4 phase meaning the start of the downward phase F5.
43	**t.F6**	1…720min	10 min		The duration of the phase F6
40	**T.F6**	50…1250 °C	230 °C		Switch-on temperature of the embers phase F6
41	**T.F6L**	50…1250 °C	130 °C		Switch-on temperature of the phase F6 for burning according to the lowered combustion curve (i.e. with no F4 phase)
42	**P.F6**	0…100%	10 %		The degree of air damper opening at phase 6
44	**t.F7**	0…10min	1 min		The duration of the phase F7. Scavenge time. Opening the air damper and burning out flue gas.
25	**P.Err**	20…100%	100 %		The degree of air damper opening at power supply failure.
26	**t.P**	5…30s	20s		The time between changes in air damper position (air damper cycle)
27	**t.MAN0**	0…30 min	5min		Control function of time for closing the air damper in MANual mode when the combustion is under way(i.e. temp. of flue gas exceeds the <22> T.F.? 45 °C). After this time, the air damper is being automatically opened to 25%. In this state, the air damper closes again, when the burning is complete (i.e., for the time <23> t.F? = 2 min, temperature of flue gas is below <22> T.F.? = 45 ° C). **Setting t.MAN0 = 0min blocks the control function**.

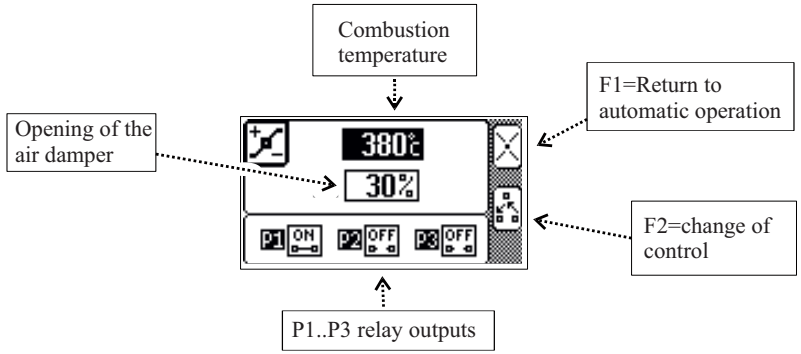
By pressing the "F2" button (8) you can cyclically change the controlled circuit. The selected circuit flashes on the display screen. Like for the air damper, by pressing the "+" button (4) you turn on and the "-" button (5) you turn off the selected circuit.

! In the alarm state, opening of the air damper above <21> P.Alarm = 20% will be blocked.

! In the MANual mode you may not lead to a full closing of the air damper during the actual combustion (before reaching the embers phase) , because it may pose serious risks of explosion of the accumulated flue gases !!!

At the same time this type of situation will lead to an excessive producing of poisonous carbon monoxide (CO), which can also be a very great danger for users !!! While burning, the air damper may not be set at 0% position for time longer than <27>t.MAN0 = 5min. Exceeding that time will automatically set the air damper position to 25%. In this state, the air damper closes again when the burning is finished (i.e. ,for the time <23> t.F? = 2min, temperature of flue gas will be below <22> T.F.? = 45 ° C).

! The manual operation mode can be disabled if the parameter <98> MAN = OFF.

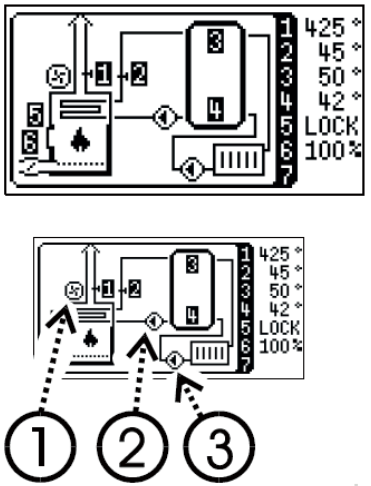


Return to automatic mode occurs after pressing „F1"(3).

7.4 Information Screen

The next screen shows the state of the whole system:

7.4.1 <93>CONFIG=1 Configuration 1 – Kitchen hood/ventilation and buffer pump



On the right side of the screen:

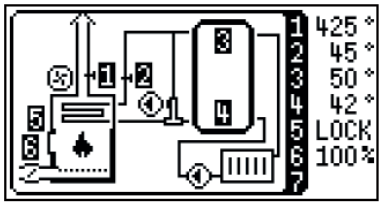
1 Temperature of flue gas
2 Water temperature in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

! Caution: in the absence of the sensor the sign „—„ is displayed

Operation fields of devices:

(1) Kitchen hood/ventilation
(2) Pump of buffer
(3) Circulating pump

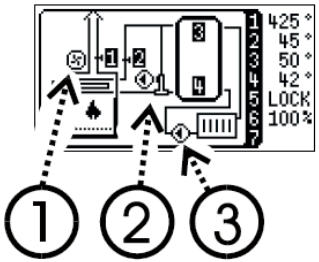
7.4.2 <93>CONFIG=2 Configuration 2 – Kitchen hood/ventilation and Laddomat



On the right side of the screen:

1 Temperature of flue gas
2 Temperature of water in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

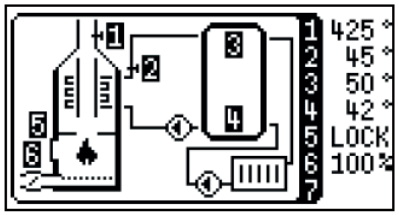
!Caution: in the absence of the sensor the sign „—„ is displayed



Operation fields of devices:

(1) Kitchen hood/ventilation
(2) Pump of thermoregulator Laddomat
(3) Circulating pump

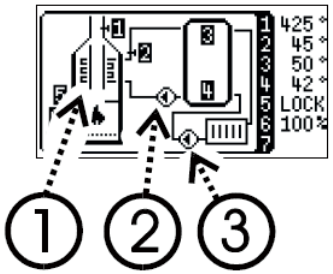
7.4.3 <93>CONFIG=3 Configuration 3 – Water booster and buffer pump



On the right side of the screen:

1 Temperature of flue gas
2 Temperature of the water booster
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

!Caution: in the absence of the sensor the sign „—„ is displayed



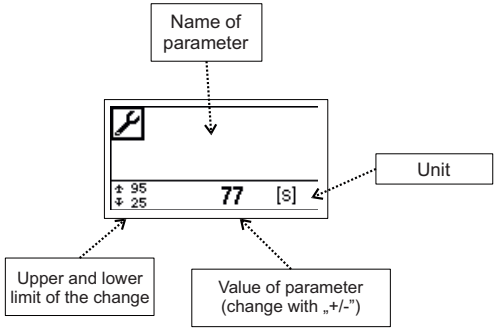
Operation fields of devices:

(1) Water booster
(2) Pump of buffer
(3) Circulating pump

Demonstration change of the <30>t.F1 parameter that defines the delay of starting the regulation (duration of the F1 phase) - parameter of level 2.

Press:

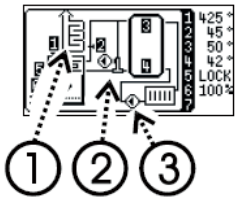
*repeatedly the SELECT button (7) till the "Parameters of Level 0" screen appears
*„SET" button > „0" starts blinking
*twofold the „+" button -> „2" blinks
*„SET" button -> „2" stops blinking (Parameters of level 2 were chosen)
*repeatedly the SELECT button (7) -> till „<30>t.F1" shows up
*„SET" button -> actual value to be changed begins blinking
*„+"/"-„ -> setting a new value
*„SET" -> setting the new value
*repeatedly "SELECT " button till the „***" parameter end setting screen appears.
*"SELECT" again-> return to the screen of stove operation.



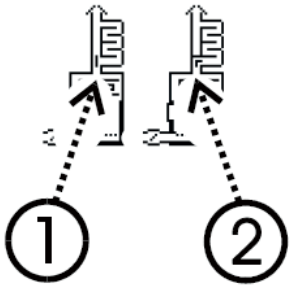
! PARAMETERS ADJUST THE OPTIMIZER TO THE PROPERTIES OF THE STOVE AND C.H. SYSTEM. THEIR CHANGE SHOULD BE CONSULTED WITH THE MANUFACTURER OF THE STOVE. INCAUTIOUS CHANGES CAN CAUSE UNSTABLE AND INEFFICIENT OPERATION OF THE SYSTEM.

PARAMETERS OF LEVEL 1 - BASIC

NO	NAME	RANGE	DEFAULT	SETTING	FUNCTION	
10	**SIG** / Signalling	OFF/ON /ON+ ALARM	ON+ ALARM		OFF	„Click" of buttons is off Alarm sound is off
					ON	„Click" of buttons is on Alarm sound is off
					ON+ ALARM	„Click" of buttons is on Alarm sound is on
					OFF+ ALARM	„Click" of buttons is off Alarm sound is on
11	**LG** /Language	polish/…	Polish		Language version	
13	**LCD** /Backlight	OFF/ ON	OFF		OFF- Backlight is enabled for 2min since last pressing of button ON-Backlight is enabled if the optimizer is on. Switching off the backlight means it assumes the value set by the next parameter <14> LCDmin.	
14	**LCDmin** /Minimum backlight	0…25 %	10%		Minimum backlight of the LCD (it's important for the negative LCD). The value "0%" turns it off completely	
15	**CR** /Registration time	1…6 hrs	2hrs		Registration time of combustion history. (At 1 hour- temperature registration every 40sec. At 2 hrs -every 2*40sec and so on.	



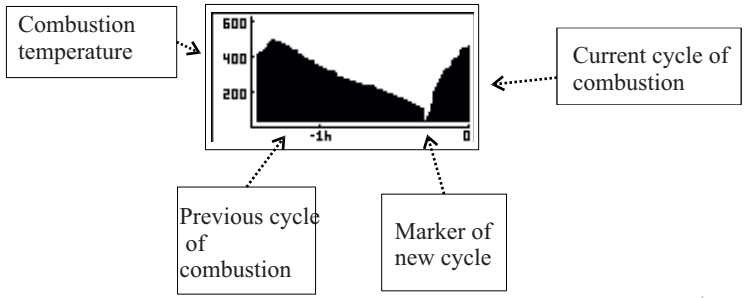
Operation fields of devices:
(1) Moritz flap of the storage mass
(2) Pump of Laddomat
(3) Circulating pump



Operation of the Moritz flap:
(1) Flue gas is directed to the chimney
(2) Flue gas heats up the storage mass

7.5 Screen of combustion history

This screen shows the history of combustion. The screen isn't visible if the stove operates in the manual mode "MANUAL". The start of registration follows with the start of the F1 phase and the end of registration after F7. The start of registration begins from the temperature 0°C, which constitutes the marker of the new cycle of combustion (see the fig. below)



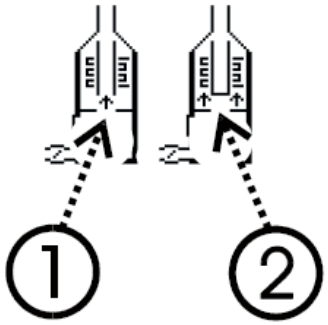
By pressing the SELECT button (7) you go over the next screens..

7.5 Screen of setting the parameters

Normally the level of parameter setting (Menu) (PARAMETERS OF LEVEL) equals to “0”, which means the parameters aren’t available.
After changing the parameters level to “1”-”5" the successive screens show the values of parameters.
The last screen displays “****” and then the setting ends and the previous described screens follows.
In order to change any parameter, you press the SET button (6). The parameter field begins blinking whose value you can change by pressing the „+” (4) or „-”(5) buttons. Afterwards you have to press the SET button (6) to confirm the change and the field stops blinking.

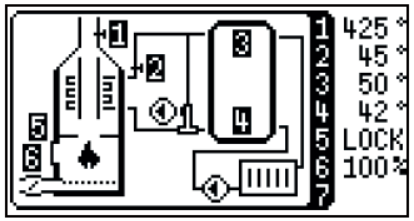
! The changed parameter value, which is not confirmed (by the SET button) for 30sec, is not stored by the optimizer - the field stops blinking and the previous parameter value is restored.

! The F2-ESC button (8) cancels current activity and reverts to the screen of optimizer operation.

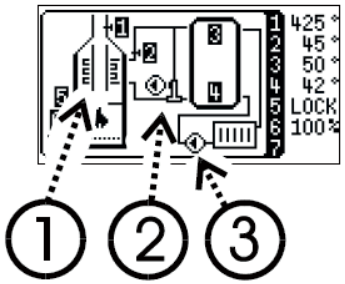


Operation of the water booster:
(1) Flue gas is directed to the chimney
(2) Flue gas heats up the water

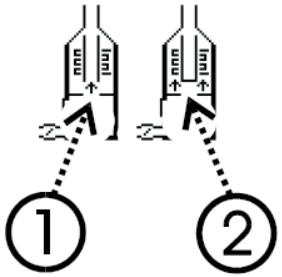
7.4.4 <93>CONFIG=4 Configuration 4 – Water booster and Laddomat



On the right side of the screen:
1 Temperature of flue gas
2 Temperature of the water booster
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper
!Caution: in the absence of the sensor the sign „—„ is displayed

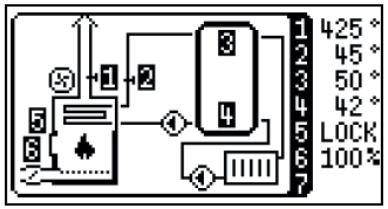


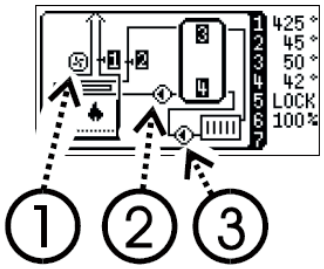
Operation fields of devices:
(1) Water booster
(2) Pump of Laddomat
(3) Circulating pump



Operation of the water booster:
(1) Flue gas is directed to the chimney
(2) Flue gas heats up the water

7.4.5 <93>CONFIG=5 Configuration 5 – Draught generator and buffer pump





On the right side of the screen:

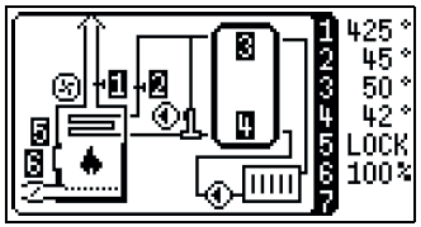
1 Temperature of flue gas
2 Temperature of water in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

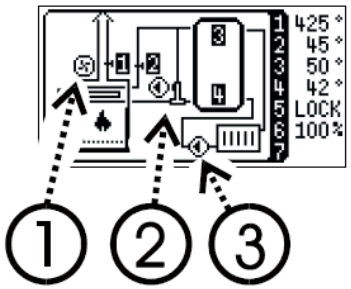
!Caution: in the absence of the sensor the sign „—„ is displayed

Operation fields of devices:

(1) Draught generator
(2) Pump of buffer
(3) Circulating pump

7.4.6 <93>CONFIG=6 Configuration 6 – Draught generator and Laddomat





On the right side of the screen:

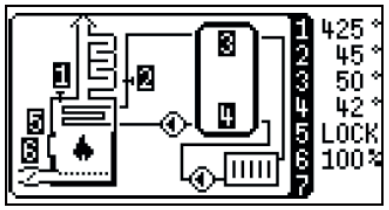
1 Temperature of flue gas
2 Temperature of water in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

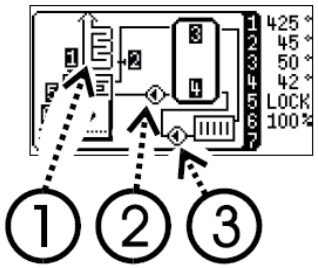
!Caution: in the absence of the sensor the sign „—„ is displayed

Operation fields of devices:

(1) Draught generator
(2) Pump of Laddomat
(3) Circulating pump

7.4.7 <93>CONFIG=7 Configuration 7 – Moritz flap of the storage mass and buffer pump





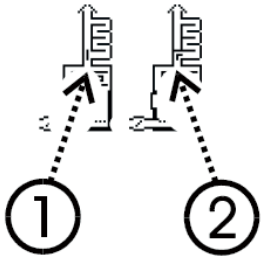
On the right side of the screen:

1 Temperature of flue gas
2 Temperature of water in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

!Caution: in the absence of the sensor the sign „—„ is displayed

Operation fields of devices:

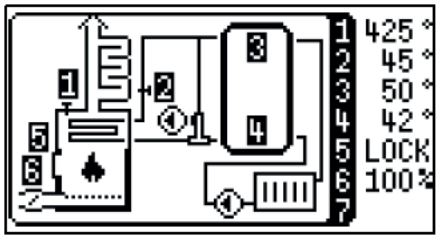
(1) Moritz flap of the storage mass
(2) Pump of buffer
(3) Circulating pump



Operation of the Moritz flap:

(1) Flue gas is directed to the chimney
(2) Flue gas heats up the storage mass

7.4.8 <93> CONFIG=8 Configuration 8 – Moritz flap of the storage mass and Laddomat



On the right side of the screen:

1 Temperature of flue gas
2 Temperature of water in the stove
3 Water temperature in the upper part of the buffer
4 Water temperature in the lower part of the buffer
5 Door: LOCK – closed
OPEN - open
6 Air damper

!Caution: in the absence of the sensor the sign „—„ is displayed