Megatherm

Wood pellet burners MPB

Installation & User Manual

This manual is for the Installer. Read, understand, and follow these instructions for safe installation and operation.

Contents

1. Warnings, Cautions, and Notes

Read the safety instructions carefully before installation. Always follow the safety instructions during installation and during maintenance

Installation, operation, service, and other work must be carried out by qualified personnel in accordance with local codes and regulations.

Always follow the instructions for operations and service.

Young children should be carefully supervised when they are in the same room with the burner.

Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid contact to skinand / or clothing.

All electrical installation and service work shall be done by certified and qualified personnel inaccordance with local codes and regulations.

Do not perform electrical work unless you have the required qualifications. Perform a complete burner shutdown and disconnect the power supply prior to performing any work on the burner. Observe all guidelines with respect to installation, service, or cleaning.

There is a risk of burn from touching the equipment during operation.
The burner casing, burner body, flange, and flame trap pipe are hot surfaces during operation. Keep children away and do not touch the equipment during operation.

Only wood pellets are to be used with this burner. No other fuel is to be used in the burner.

NEVER BURN ANY TYPE OF CORN, CHERRY PITS, STICKS OR OTHER TYPES OF FUEL IN THE BURNER.

Burning wood pellets according to recommendations and the specifications set forth will assure longer burner life and lessen potential maintenance issues.

DO NOT install in a sleeping room.

DO NOT connect to any air distribution duct or system.
DO NOT terminate the vent in any enclosed or
semi enclosed area, such as; carports, garage,
attic, crawl space, under a sun deck or porch, narrow walkway or closed area, or any location
that can build up a concentration of fumes such
as a stairwell, covered breezeway etc.

2. The principle of working

The device's work is based on providing fuel via steering the feeder appropriately and the work of a fan which steers the burning process. After reaching a particular temperature of the heating water, the driver goes into the mode of sustaining the temperature or switches the burner completely off. The ignition of fuel starts automatically with the help of igniter which is connected to this driver. The regulator operates also on the useful warm water buffer. The WUW pump starts working when the regulator detects too low temperature of the WUW buffer. It is also possible to stipulate the working mode of the WUW pump – with a priority or without it. The driver enables the control of the furnace's work thanks to the room thermostat. It is possible to steer the heating in relation to the actual temperature in the room. The regulator is also equipped with the self-control systems (detecting the malfunction of the temperature's sensors) and mechanisms monitoring the furnace's work preventing from going beyond the range of safety for the installation of the central heating.

3. Technical specifications

Type	**MPB 50**	**MPB 80**
Heat outup	**25-50kW**	**40-80kW**
	21.800-68.800Kcal	**34.400-68.800Kcal**
Maximum pellet consumption	**5-10kg/hr**	**8-16kg/hr**
Average pellet consumption/day	**18-90kg**	**30-140kg**
Lenght (total)	**565mm**	**610mm**
Width	**270mm**	**270mm**
Height with feeding pipe	**565mm**	**565mm**
Height without feeding pipe	**280mm**	**280mm**
Diameter	**Φ 180mm**	**Φ 180mm**
Power supply	**230Volt / 80Hz**	**230Volt / 80Hz**
Average power consumption	**40-50Watt (approx.)**	**40-70Watt (approx.)**
Fuel	**Wood pellet** φ **6-8mm, hymidity <10%**	**Wood pellet** φ **6-8mm, hymidity <10%**
Weight	**18kg**	**19kg**
Fedder's length	**1,5m**	**1,5m**

4. Boiler

It is important to check that the combustion chamber in the boiler is big enough to ensure that the flame does not come in contact with the water-cooled walls. Verify that the boiler's capacity range complies with the burner. There must be enough space for the ash to accumulate. The exhaust gas channels should not be so narrow that they can easily be clogged with ash.

The distance between the front edge of the burner and the rear part of the combustion chamber should be at least 350mm for the MPB 50 and500mm for the MPB 80 burner.

The minimum distance to the bottom of the fireplace depends on the boiler design.

There must be enough space for the quantity of ash build up that is created during at least one week's use in the winter heating season.

5. Chimney

We recommend that you have a local chimney sweeper or other corresponding authority make an inspection and provide advice and instructions on the chimney measurements in accordance with local codes and regulations.

The chimney should then of a length and diameter that gives a draught of **10 - 25 Pa**. Measures have to be taken if the chimney is smaller or much larger in diameter in order to give the proper draught and flow.

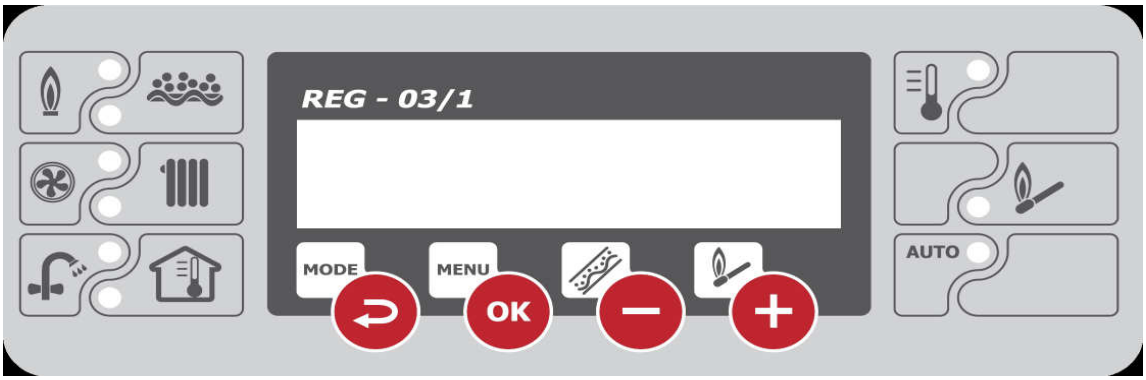
If there is not enough draught in the chimney, exhaust gases stack in boiler's combustion camber or in the chimney with the risk of explosion. Also, gas flow into the boiler's room can happened.

Always check the exhaust gas temperature. Directly after the boiler it should be from 160° C to 250° C.

Too high a temperature can damage the chimney and is not economical.

Too low a temperature, a very high chimney, or a large chimney diameter creates a risk for condensation that can cause corrosion and damage due to freezing.

6. Description of the controller



Description:

- Diodes signalising the status of outputs and the working mode of the driver,
- LCD screen used for communication between the device and the user,
- Buttons steering the driver's work.

6.1 DESCRIPTION OF BUTTONS:

Πλήκτρο		Λειτουργία
	1	Changes the burner's working mode – **"STOP"**, **"IGNITION"**, **"AUTOMATIC WORK"**.
	2	Return to the previous menu
	1	Entry on the Menu's parameters
	2	Saves the change of a parameter
	1	In the **Ignition MODE** activates the feeder for the time specified on the parameter "Filling Feeder Time"
	2	• Go to the previous menu or parameter • Decreases the value of a parameter
	1	• In the **Ignition MODE** activates the ignition procedure
	2	• Go to the menu menu or parameter • Increases the value of a parameter του καυστήρα.

6.2 TECHNICAL CHARACTERISTICS OF THE CONTROLLER

Sensors: KTY-210

Measurement range: 0 – 120 °C

Measurement resolution: 0.1 °C

Time of measurements: 1 s

Data's reading: LCD screen 2x20 signs

Steering outputs:

- Igniter: ~230V 2A (0.8A)
- Feeder: ~230V 2A (0.8A)
- Burner's fan: ~230V 2A (0.8A)
- CH pump: ~230V 2A (0.8A)
- WUW pump: ~230V 2A (0.8A)
- Thermostat 2 contacts (open/close) max. 24V 2A

Protection:

- Temperature STB (95°C)
- Electric Fuse 4A

Inputs:

- Room thermostat: Open contact
- Temperature sensors: KTY-210

Visual signalling:

- LED diodes Signalling the status of outputs
- LCD screen Messages, measurements, settings

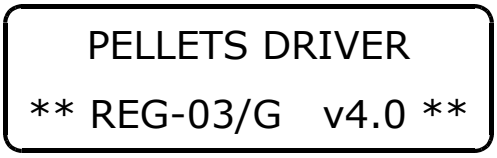
Power supply: ~230 V 50Hz 2VA

Working temperature: 5°C - 50°C

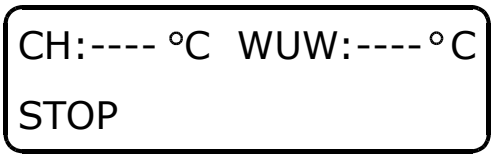
Casing protection: IP20

7. Operation functions

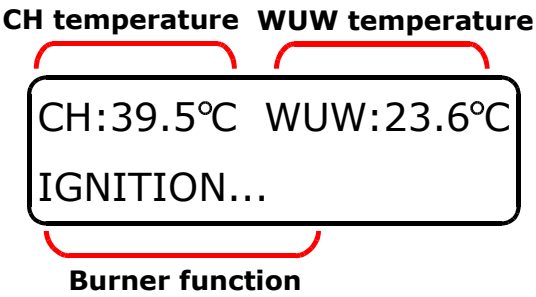
After switching the driver on, on the LCD screen appears the program's logo defining the type of the driver, current version of software and the manufacturer's logo.



While activating, the driver carries out a test of the connected sensors. In case of one lacking, on the screen appears an appropriate message (---). The work of the driver without a heating water temperature sensor (CH) is blocked and an emergency mode is activated (CH pump is still on).



Correct connection of sensors causes displaying of actual CH furnace's temperature and the temperature of useful warm water of the WUW buffer (if the function is active). On the screen appears which function is currently used by the driver.



The driver may work in three working modes ("STOP", "IGNITION", "AUTOMATIC WORK"). The change of the working mode happens when the "MODE/↩" button is pressed on the regulator's panel. Activating the "STOP" mode is possible in all modes after pressing the "MODE/↩" button for 3 seconds. This mode activates procedures connected with the burner's putting out i.e. burning off and cleaning.

While activating the driver for the first time, the **"STOP"** mode is activated. Every next time, its status is saved in the regulator's non-volatile memory. Activating the driver again,

automatically causes switching on of the lately used working mode.

In the table beneath a short description of particular functions of the burner, activated depending on the working mode of the driver, is shown.

FUNCTION'S NAME	DESCRIPTION OF FUNCTIONS
STOP	Burner stopped.
FEEDER FILLING	Filling the feeder. Filling stops automatically after about 10 minutes.
IGNITION	Ignition of pellet. The mode would be automatically changed after detecting a flame by the sensor.
CLEANING	The cleaning of the burner from he left ashes. The cleaning function also as a blow down before ignition.
WORK	Heating the boiler up to the set temperature. Showing the actual power of the burner.
MAINTAIN	Sustaining the set temperature (if the burner's working mode is in the mode of continuous work)
BURNING OFF	Putting off the burner. Active in the **"STOP"** mode or in the temporal working mode of the burner.
STANDBY	Standby of the burner for the decline of the temperature of a hysteresis (if the burner's working mode is in the temporal mode).

8. Parameter's

To move round the menu and to set particular parameters there are four buttons placed on the driver's panel: **"MODE/↩"**, **"MENU/OK"**, **"+"**, **"-"**. The parameters chosen by the user are divided into four groups: (A) **"CH FURNACE SETTINGS"**, (B) **"WUW BUFFER SETTINGS"**, (C) **"BURNER SETTINGS"**, (D) **"DRIVER SETTINGS"**. The division of particular parameters in groups is shown in the **"Settings' table".**

- **CH FURNACE SETTINGS** (A)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	HEATING WATER TEMPERATURE	°C	35 - 85	65*
2	CH PUMP ACTIVATION TEMPERATURE	°C	20 - 60	35*
3	CH FURNACE HYSTERESIS	°C	1 - 20	5*
4	THERMOSTAT 2 TEMPERATURE	°C	10 – 90	Off*
5	FURNACE MODE	---	Winter/Summer	Winter*

- **WUW BUFFER SETTINGS** (B)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	WUW BUFFER TEMPERATUR	°C	20 - 80	40*
2	WUW SURPLUS TEMPERATURE	°C	5 - 20	10*
3	WUW PRIORITY	---	Yes/No	No*

- **BURNER SETTINGS** (C)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	BURNER POWER (WORK)	kW	10 - 80	30*
2	BURNER POWER (MAINTAIN)	kW	2- 9	3*
3	BURNER MODE**	---	Continuous/ Single	Continuous*
4	BURNER FLAME MEASUREMENT	%	---	---

**** Burner has 3 modes: continuous mode, single mode and analogue mode.**

Single mode: The burner reaches the desired "HEATING WATER TEMPERATURE " and burns off. Then, it starts its operation again when the temperature of the boiler goes down to the temperature "HEATING WATER TEMPERATURE - CH FURNACE HYSTERESIS". The CH FURNACE HYSTERESIS must be more than 10 °C

Continuous mode: The burner reaches the desired "HEATING WATER TEMPERATURE " and goes down at 3kW (maintain).When the boiler's temperature goes down to the temperature "HEATING WATER TEMPERATURE - CH FURNACE HYSTERESIS", the burner increases its power from 3kW (maintain) to the maximum burner power (i.e30kW). The CH FURNACE HYSTERESIS must be no more than 5 °C

Analogue mode: The burner reduces its power 1/3 (for example: from 30kW to 21kW) 10 °C before the furnace reaches the "HEATING WATER TEMPERATURE ". When the temperature of the furnace is 510 °C before "HEATING WATER TEMPERATURE ", the burner reduces its power again 1/3 ((for example: from 21kW to 12kW).

- **DEVICE SETTINGS** (D)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	LANGUAGE SETTINGS	---	Polish/ English/ Germany/Greek	English*
2	FACTORY SETTINGS	---	Yes/No	---

3	ENABLE SERVICE MODE	---	000 - 999	112

- **MANUFACTURER SETTINGS** (E)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	FILLING FEEDER TIME	minutes	5 - 20	11*
2	PELLETS IGNITION TIME	minutes	1 - 15	6*
3	FAN POWER (IGNITION)	%	5 - 50	10*
4	PELLETS DOSE (IGNITION)	g	50 - 500	320*
5	FEEDER PERFORMANCE	kg/h	5.0 – 25.0	20.0*
6	PELLETS FEEDING PERIOD	seconds	10 - 60	20*
7	OVERFLOW PELLETS AIR	multiplier	0.2 - 4	1.0*
8	FLAME DETECTOR TRESHOLD	%	5 – 90	10*
9	FURNACE PROTECTION (OVERHEAT)	ºC	60 - 90	80*
10	IGNITION STABILIZATION	Seconds	0 - 250	90*
11	MAXIMUM BURNER POWER	KW	30 – 250	80*
12	MINIMUM FURNACE TEMPERATURE	ºC	20 – 60	35*
13	EXTERNAL CONTROL	-	Yes / No	No*
14	TEMPERATURE CALIBRATION	ºC	- 10.0 – 10.0	0.0*

9. Manufacturer's menu

Activation of Manufacturer's menu

In order to activate the manufacturer's settings menu, go to the settings menu of the driver "DRIVER SETTINGS" and sub-menu "ENABLE SERVICE MODE" and with the help of buttons "MENU/OK" and "+" or "-" choose the code 112. Then, press "MODE/ " and leave the sub-menu, go to the menu "MANUFACTURER SETTINGS"

* CAUTION!!

Manufacturer's settings are exclusively the suggestion. All of the values depend on the kind of solid fuel, the sysytem, the user's requirements, etc.

The producer of the burner reserves the changes of the ranges of settings in next versions of the driver.

Description of manufacturer's settings

E. MANUFACTURER SETTINGS

1. FEEDER FILLING TIME

In this menu the manufacturer sets the time of the feeder's filling. The time is the protection from filling up of the burner. This time depends on the angle of arrival of the large feeder. The parameter is set in the bracket of 5 to 20 minutes.

2. PELLETS IGNITION TIME

In this menu the manufacturer sets the time of the pellet's ignition. After the lapse of time, the ignition cycle restarts. The cycle is repeated once again. Unsuccessful trials of ignition are seen on the screen as a message: **no pellets**. The cause of this condition may be also a broken or dirty flame's sensor. The time of ignition is set in the bracket of 1 to 15 minutes.

3. FAN POWER (IGNITION)

In this parameter the producer sets the power of the fan during the pellet's ignition. The fan's power is set in the bracket of 5 to 50%.

If chimney's draught is over -15Pa, then the parameter stays at 10%

If chimney's draught is from 0 to -15Pa, then the parameter must change to 15-20%.

4. PELLETS DOSE (IGNITION)

In this parameter the manufacturer sets the dose of fuel needed to ignite the burner. The parameter is set in the bracket of 50 to 500 grams. Depending the pellet's quality the parameter can change from 280gram to 340grams. The default value is 320grams

5. FEEDER PERFORMANCE

In this parameter the manufacturer sets the performance of the feeder. The whole work of the burner is based on this parameter. The parameter is set in the bracket of 5 to 45 kg/h with the step of 500grams.

6. PELLETS FEEDING PERIOD

In this parameter the manufacturer sets the period of feeding the pellet. After the lapse of time, the driver releases the next dose of fuel. In the cycle of maintain, the parameter is ten times multiplied. The feeding period of the pellet is set in the bracket of 10 to 60 seconds.

7. OVERFLOW PELLETS AIR

In this parameter the manufacturer sets the overflow of the air needed to burn the specified amount of the pellet. This parameter should be increased if during the working cycle too low capacity of the fan would be noticed. The overflow of the air is set in the bracket from 0.2 to 4.

For the MPB 50 burner the default value is 1.0. Manufacturer suggests the calibration of the burning air to be made just from the damper on the air fan.

For the MPB 80 the default value is 0.4. Manufacturer suggests the calibration of the burning air to be made by changing the parameter between 0.25-0.50

8. FLAME DETECTION TRESHOLD

In this parameter the manufacturer sets the flame's detection threshold. Beneath the pre-set threshold's value, the burner detects the vanishing of the flame. The parameter is set in the bracket of 5 to 90%.

9. FURNACE PROTECTION (OVERHEAT)

In this parameter, the user sets the furnace's temperature which protects from the overheating. The protection is activated when a higher temperature than the one that was previously set is reached and when the CH pump is turned off. The driver starts the CH pump automatically and switches off the burner. The protection of the furnace from the overheating is set in the bracket of 60 to 90 ºC. The furnace's protection can be activated when:

- working of room thermostat and simultaneously surpassing the protection temperature of the furnace,
- setting **"Summer"** function and simultaneously surpassing the protection temperature of the furnace,
- setting the **"STOP"** mode and simultaneously surpassing the protection temperature of the furnace,
- surpassing the temperature of the heating water over 90 ºC.

10. IGNITION STABILIZATION

When ignition has occurred, the air-fan works for the time, which has been set by this parameter. This operation drives the ignition gases out of the boiler faster.

11. MAXIMUM BURNER POWER

In this parameter the installer can set the maximum burner power, where the user can set by visiting the burner's menu. This prevents the user to set the burner at a maximum power, than the one it is required by the system.

12. MINIMUM FURNACE TEMPERATURE

In this menu the manufacturer sets the minimal temperature of the furnace which can be set by the user. The activity of the room thermostat causes the setting of the boiler

into this parameter. The minimal temperature of the boiler is set in the bracket of 20 to 60 °C.

13. EXTERNAL CONTROL (room thermostat)

This parameter, it is activated only if room thermostat it is connected on the controller

If external control No(Manufacturer's settings)**:**

1. When thermostat is ON, the burner works at the maximum power it is set.
2. When thermostat is OFF, the burner burns off

This is mostly suggested for low consumption houses (less than 3.000kg/year) or for connecting with timer.

If external control Yes(Manufacturer's settings)**:**

1. When thermostat is ON, the burner works at the maximum power it is set.
2. When thermostat is OFF, the burner goes at maintain mode and keeps a small fire.

In both cases, when the thermostat is OFF, the CH pump stops.

14. TEMPERATURE CALIBRATION

In this menu the manufacturer calibrates the temperature sensors. It is possible to add a regular offset for the temperature of the furnace and the warm useful water. The parameter is set in the bracket of -10 to +10°C.

10. Room thermostat

The room thermostat (or a timer) can be connected on the connector which is at the back of the controller, by replacing the "bridge (or on the PINs 1&2 in the controller).

It is forbidden to give voltage to this connection. The connection with the room thermostat must be only a "Cold junction"

When a room thermostat is connected in the controller, we have the two following options:

If external control No(Manufacturer's settings)**:**

3. When thermostat is ON, the burner works at the maximum power it is set.
4. When thermostat is OFF, the burner burns off

This is mostly suggested for low consumption houses (less than 3.000kg/year) or for connecting with timer.

If external control Yes(Manufacturer's settings)**:**

1. When thermostat is ON, the burner works at the maximum power it is set.
2. When thermostat is OFF, the burner goes at maintain mode and keeps a small fire.

In both cases, when the thermostat is OFF, the CH pump stops.

11. First use

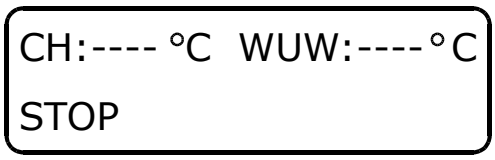
1. Ensure that the installation has been done according to this manual
2. Ensure that the plastic pipe is not connected to burner's feeding pipe
3. Fill the feeder up with wood-pellet, by connected the power supply cable of the controller with the feeder's cable (alternative, you can fill the feeder by following the direction of paragraph 14). The filling of the feeder lasts 8-13min depended on feeders incline.
4. Ensure that the feeder is full. Let the feeder working after the first pellets come out of the feeder for 10-15 minutes (locate a plastic bag at the exit of the feeder)
5. Empty the plastic bag and place it back at the exit of the feeder.
6. Connect again the power supply cable of the controller with the feeder's cable for *2 minutes.*
7. Weight the wood pellet which is in the bag (*for example 0.8kg*)
8. Multiply it by *30 minutes (0.8x30 = 24kg/hr)*. This is the **feeder's performance**
9. *Repeat the steps 4-8, 2-3 times* until you make sure that you weight the right quantity.
10. **Place this value *(i.e 24kg/hr)* on manufacturer's settings menu, in the parameter "*5. Feeder Performance*"**
11. Connect the power cable back to the controller and also we plug the feeders cable to the controller.
12. Switch on the controller and set the burner at "Automatic mode".
13. When the maximum power of the burner is reached (from 25 to-80kW), then adjust the burners flame by calibrating the air.

For the MPB 50, the parameter "Overflow pellet's air" at Manufacturer's menu is set at 1.0 and the burning air is calibrated by adjusting the damper of the air-fan.

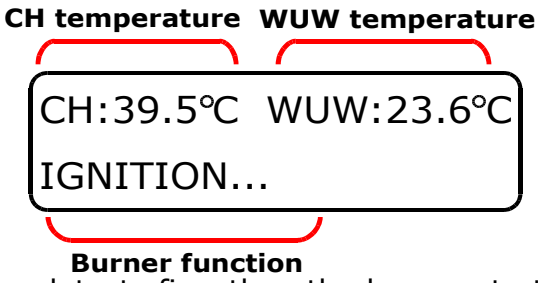
For the MPB 80, the burning air is calibrated just by changing the value of "Overflow pellet's air" at Manufacturer's menu. The value must be between 0.25-0.5

12. Start of the burner

1. Activate the controller by pressing the button 
2. It is written on the LCD screen the following



3. By pressing the button "**MODE/**↩ " once changes the operation from "**Stop**" to "**ignition**". By pressing the button "**MODE/** ↩ " changes the operation from "**Ignition**" to "**Automatic**".
4. In "Automatic mode", starts the operation of the burner.



5. When the photo sensors detects fire, then the burner starts its "Work" by increasing its power gradually to the power it has been set (i.e 30kW)
6. When the boiler's water temperature reaches the desired temperature "HEATING WATER TEMPERATURE ", the the power of the burner goes down ta 3kW (**Maintain mode**)
7. The burner works at "Maintain mode" till the boiler's water temperature goes down to the temperature:

"HEATING WATER TEMPERATURE - CH FURNACE HYSTERESIS"

13. Stop of the burner

1. The burner can be either at "**Work**" or "**Maintain**" or "**standby**"
2. Press the button "**MODE/**↩ " continuously till "**STOP MODE**" appears on the screen.
3. It is written "*Burning off*" till the photo sensor stops to detect fire (3-5 min)
4. When he photo sensor stops to detect fire, "cleaning procedure takes place for few seconds.

14. Cleaning burner's chamber

1. The burner can be either at "**Work**" or "**Maintain**" or "**standby**"
2. Press the button "**MODE/**↩" continuously till "**STOP MODE**" appears on the screen.
3. It is written "**Burning off**" till the photo sensor stops to detect fire (3-5 min)
4. When he photo sensor stops to detect fire, "cleaning procedure takes place for few seconds.
5. When "**Stop**" appears on the LCD screen, waiting few minutes till the burner cools down.
6. Open the boilers door, clean the burners tube and close back the door.
7. By pressing the button "**MODE/**↩" once changes the operation from "**Stop**" to "**ignition**". By pressing the button "**MODE/**↩" changes the operation from "**Ignition**" to "**Automatic**".

***** The frequency of cleaning burner's chamber is depended on wood pellet's quality. If premium pellet is used, It is suggested the burner's chamber to be cleaned once a week.***

15. Restart the burner after an error

1. Turn off the burner by pressing the button ON/OFF 
2. Open the boiler's door and check the burners tube.
3. Remove any ashes and impurities from burners tube.
4. Close the door and switch on the controller by pressing the button 
5. By pressing the button "MODE/↩" once changes the operation from "Stop" to "ignition". By pressing the button "MODE/↩" changes the operation from "Ignition" to "Automatic"

16. Feeder's filling procedure

1. Remove the plastic tube connection the burner with the feeder
2. Reset the controller by pressing the button 
3. "Stop" appears on the LCD scree
4. By pressing the button "MODE/↩" once changes the operation from "**Stop**" to "**ignition**".
5. **"CHOICE FUNCTION-/+"** appears on the LCD screen
6. Press the button to start the feeder

7. Feeders operation lasts 11min (Manufacturer's setting / Feeder's filling time"
8. When the wood-pellet starts to come out of the feeder, switch off the controller.
9. Connect the feeder with the burner, by using the plastic pipe.

17. Burners safety systems

For total, fail-safe security, the burner is equipped with four safety systems:

1. The plastic pipe connecting the feeder with the burner. This tube will melt away from the burner in event of a too high temperature, thereby breaking contact between pellets fuel replenishment and the burner.

2. The burner's fall-tube is equipped with a back-burn protection system which is triggered at 65 °C. The back-fire protection system is placed on the fall-tube. In the event of the alarm being triggered always investigate the cause and rectify.

3. The Overheating Boiler sensor (STB sensor), which is activated when the boiler's temperature is higher than 95 °C. When this protection is activated, the light next to the STB sensor is ON and the the feeder is turned off. The, you must reset the STB sensor, the feeder to work again.

4. The photo sensor senses that ignition has taken place and is running normally.

18. Errors

Indication	Description	Solution /
CH: !!!!!! WUW: !!!!!!! STOP	Malfunction of the water temperature sensors	1. The driver starts up relevant emergency procedures for every sensor in order to prevent the boiler from working beyond the safe range for the installation of the central heating 2. When the boiler cools down, then restart the controller and set the burner on automatic mode.
"Furnace protect"	The temperature in the boiler is higher than 92 °C. If the temperature is above 95 °C, the STB sensor is activated and the feeder is turned off automatically (the light next to the STB sensor is ON). At any case the pumps are activated to avoid higher temperatures	1. Wait till the boilers water temperature goes down to 60 °C 2. Reset the STB sensor, so the light next to it to be OFF. 3. Restart the controller and set the burner at automatic mode.
"Burner alarm"	The temperatures on burner's feeder pipe is higher than 65 °C. (Back fire protection) This is happened either the chimney's draught is no the appropriate or the burner hasn't been cleaned.	1. If the temperature goes down to 60 °C and the photo sensor scans light, then the burner's operation continuous normally. 2. If the temperature goes down to 60 °C and the photo sensor doesn't scan any light, then the signal “Burner alarm” is still on the LCD and you must restart the controller.
"NO pellet"	1. No pellet on the silo	1. Fill up the silo with pellet 2. Fill the feeder with pellet (Filling feeder procedure) 3. Set the burner at automatic mode
	2. The feeder doesn't work	If the light next to STB sensor is ON, it means that overheat of the boiler has occurred and STB has turned the feeder OFF. 1. Reset the STB sensor, so the light next to it to be OFF. 2. Restart the controller and set the burner at automatic mode.
		Check the cable from feeder to the controller
	3. Problem during ignition procedure	Burner's tube hasn't been cleaned properly 1. Clean the burner 2. Restart the controller and set the burner at automatic mode.
		Igniter doesn't work 1. Change the igniter inside the burner.

19. Warranty

5-years in metal parts

2-years in electric parts (feeder's motor & air-fan)

1-year in electronic controller

No waarranty is given for the heating element (igniter)

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