



## Wood pellet burner **MPB 90 Pro**



## **Installation & User Manual**

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

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## 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 skin and / or clothing.

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

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.

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.



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 principle of work of MPB 90 Pro burner is based on providing fuel via steering the feeders appropriately and the work of a fan which steers the burning process. The MPB Pro burners are supplied with 2 feeders:

The 1<sup>st</sup> feeder (**external feeder**), which supplies wood pellet from the storage tank to the burner

The 2nd feeder (**internal feeder**) which drives the wood pellet to the burner's fire chamber. The operation of the internal feeder is depended on the external feeder's operation time. The parameter "FEEDER MULTIPLIER" is used to set the operation time of the internal feeder regarding the operation of the external feeder.

### **MPB Pro burners have 3 ways of operating:**

**Single mode:** The burner reaches the desired "HEATING WATER TEMPERATURE " (i.e 65°C) 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" (i.e 65°C-10°C=55°C) . 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" (i.e 65°C-3°C=62°C) , the burner increases its power from 3kW (maintain) to the maximum burner power (i.e 30kW). The "CH FURNACE HYSTERESIS" must be no more than 5 °C

**Analogue mode:** The burner reduces its power 1/3 (for example: from 150kW to 100kW) 10 °C before the furnace reaches the "HEATING WATER TEMPERATURE ". When the temperature of the furnace is 5 °C before "HEATING WATER TEMPERATURE ", the burner reduces its power again 1/3 (for example: from 100kW to 50kW).

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	<b>MPB 90 Pro</b>
Heat output	<b>40-90kW</b>
	<b>34,400-77,400Kcal</b>
Maximum pellet consumption	<b>8-18kg/hr</b>
Length (total)	<b>745mm</b>
Width	<b>270mm</b>
Height with feeding pipe	<b>360mm</b>
Height without feeding pipe	<b>290mm</b>
Diameter	<b>Φ 180mm</b>
Power supply	<b>230Volt / 80Hz</b>
Average power consumption	<b>50-60Watt (approx.)</b>
Fuel	<b>Wood pellet</b> <i>φ</i> <b>6-8mm, humidity &lt;10%</b>
Weight	<b>27kg</b>
Feeder's length	<b>1.5m</b>

## **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 800mm for the MPB 150 Pro and 170mm for the MPB 250 Pro 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 **15 - 35 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 chamber 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.


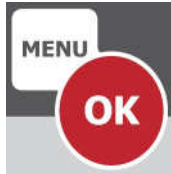


## 6. Description of the controller



Description:

- ◆ Diodes signalling 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 – <b>"STOP"</b> , <b>"IGNITION"</b> , <b>"AUTOMATIC WORK"</b> .
	2	Return to the previous menu
	1	Entry on the Menu's parameters
	2	Saves the change of a parameter
	1	In the <b>Ignition MODE</b> activates the feeder for the time specified on the parameter "Filling Feeder Time"
	2	<ul style="list-style-type: none"> <li>• Go to the previous menu or parameter</li> <li>• Decreases the value of a parameter</li> </ul>
	1	<ul style="list-style-type: none"> <li>• In the <b>Ignition MODE</b> activates the ignition procedure</li> </ul>
	2	<ul style="list-style-type: none"> <li>• Go to the menu menu or parameter</li> <li>• Increases the value of a parameter του καυστήρα.</li> </ul>

## 6.2 TECHNICAL CHARACTERISTICS OF THE CONTROLLER

<b>Sensors:</b>	KTY-210
<b>Measurement range:</b>	0 – 120 °C
<b>Measurement resolution:</b>	0.1 °C
<b>Time of measurements:</b>	1 s
<b>Data's reading:</b>	LCD screen 2x20 signs
<b>Steering outputs:</b>	<ul style="list-style-type: none"><li>• Igniter: ~230V 2A (0.8A)</li><li>• External Feeder: ~230V 2A (0.8A)</li><li>• Internal Feeder: ~230V 2A (0.8A)</li><li>• Burner's fan: ~230V 2A (0.8A)</li><li>• CH pump: ~230V 2A (0.8A)</li><li>• Thermostat 2 contacts (open/close) max. 24V 2A</li></ul>
<b>Protection:</b>	<ul style="list-style-type: none"><li>• Temperature STB (95°C)</li><li>• Electric Fuse 6A</li></ul>
<b>Inputs:</b>	<ul style="list-style-type: none"><li>• Room thermostat: Open contact</li><li>• Temperature sensors: KTY-210</li></ul>
<b>Visual signalling:</b>	<ul style="list-style-type: none"><li>• LED diodes Signalling the status of outputs</li><li>• LCD screen Messages, measurements, settings</li></ul>
<b>Power supply:</b>	~230 V 50Hz 2VA
<b>Working temperature:</b>	5°C - 50°C
<b>Casing protection:</b>	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.

PELLETS DRIVER  
\*\* REG-03/G v4.0 \*\*

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).

CH:---- °C WUW:----°C  
STOP

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.

**CH temperature WUW temperature**

CH:39.5°C WUW:23.6°C  
IGNITION...

**Burner function**

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 <b>"STOP"</b> 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	FURNACE MODE	---	Winter/Summer	Winter*

### ➤ BURNER SETTINGS (B)

FUNCTION NO.	FUNCTION NAME	SETTING UNIT	SETTING RANGE	MANUFACTURER SETTING
1	BURNER POWER (WORK)	kW	10 - 90	30*
2	BURNER POWER (MAINTAIN)	kW	2 - 19	10*
3	BURNER MODE**	---	Continuous/ Single/Analogue	Continuous*
4	MAXIMUM MAINTAIN TIME	hours	Off – 8	Off *
5	SELF CLEANING FREQ TIME	min	10 – 480	240*
6	SELF CLEANING TIME	sec	Off – 60	off
7	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.e 30kW). 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 (C)**

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 (D)**

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	g	50 - 500	180*

	(IGNITION)			
5	FEEDER PERFORMANCE	kg/h	5.0 – 99.0	20.0*
6	PELLETS FEEDING PERIOD	seconds	10 - 60	20*
7	OVERFLOW AIR (WORK)	multiplier	0.2 - 4	0.4*
8	OVERFLOW AIR (MAINTAIN)	multiplier	0.2 - 4	1.0*
9	FLAME DETECTOR TRESHOLD	%	5 – 90	10*
10	FURNACE PROTECTION (OVERHEAT)	°C	60 - 90	80*
11	STB TEMPERATURE	°C	90 – 110	90*
12	FEEDER MULTIPLIER	-	1 – 5	2*
13	IGNITION STABILIZATION	Seconds	0 - 250	30*
14	MAINTAIN STABILIZATION	Seconds	0 - 250	90*
15	MAXIMUM BURNER POWER	KW	30 – 250	90*
16	MINIMUM BURNER POWER	KW	2 – 50	19*
17	MINIMUM FURNACE TEMPERATURE	°C	20 – 60	35*
18	SENSOR TYPE	-	KTY/PT	KTY*
17	EXTERNAL CONTROL	-	Yes / No	No*
18	TEMPERATURE CALIBRATION	°C	- 10.0 – 10.0	- *

## 9. Manufacturer's menu

### Activation of Manufacturer's menu

In order to activate the manufacturer's settings menu, go to the menu "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 system, the user's & installations 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.

Manufacturer Advise: **10-12min**

#### 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: **Alarm!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.

Manufacturer Advise: **6-7min**

### **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%.

Manufacturer Advise: **10%**

### **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.. The default value is 180grams

Manufacturer Advise: **180-200gr.** Depends on pellet quality

### **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 99 kg/h with the step of 500grams.

Manufacturer Advise: **Can not be given any advise since it is depended on the feeder's angle and pellet quality. Please follow the procedure on paragraph 11 "First use"**

### **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.

Manufacturer Advise: **10-20s**

### **7. OVERFLOW AIR (WORK)**

In this parameter the manufacturer sets the overflow of the air needed to burn the specified amount of the pellet during **maximum work power of the burner**. 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 0.10 to 4.00

Manufacturer Advise: **Can not be given any advise since it is depended on power, pellet, chimney draught, etc..**

### **8. OVERFLOW AIR (MAINTAIN)**

In this parameter the manufacturer sets the overflow of the air needed to burn the

specified amount of the pellet during maintain mode. 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 0.10 to 4.00

Manufacturer Advise: **Can not be given any advise since it is depended on power, pellet, chimney draught, etc..**

## **9. 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%.

Manufacturer Advise: **10%**

## **10. 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 °C. 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 °C.

Manufacturer Advise: **80-90 °C**

## **11. STB TEMPERATURE**

It is the temperature where the Overheating Alarm is activated. At the same time the controller activates the CH pump and the WUW pump. For water boiler the default value is 90 °C.

If sensor type PT is chosen then, the value of this parameter can change depending the application.



**12. FEEDER MULTIPLIER**

In this parameter, we set the value of the operation time of the Internal feeder regarding the operations time of the External Feeder. The operation time of the internal feeder must be enough, so the wood-pellet is supplied from the external feeder, to be driven by the internal feeder to the burners fire chamber.

Manufacturer Advise: 1.5 – 2.5

**13. IGNITION STABILIZATION**

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

Manufacturer Advise: **10-30sec**

**14. MAINTAIN STABILIZATION**

When the burner goes from work mode to maintain mode, the air fan works for the time is set in this parameter, so to burn the wood-pellet which is located in the burner's fire chamber, before starts the maintain mode.

Manufacturer Advise: **60-240sec.**

**15. 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.

Manufacturer Advise: **90kW**

**16. MINIMUM BURNER POWER**

In this parameter the installer can set the minimum 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.

Manufacturer Advise: **19kW**

**17. 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.

Manufacturer Advise: **35 °C**

## 18. SENSOR TYPE

In this parameter the installer can choose between KTY and PT 1000 temperature sensors.

KTY is the default sensor which is used for measuring temperatures up to 100 °C.

**The PT 1000 sensor is given by the manufacturer under request and it is used to measure temperature higher than 100 °C (industrial applications).**

## 19. EXTERNAL CONTROL (Industrial application)

This parameter, it is activated only for industrial application

**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.

Manufacturer Advise: **Can not be given any advise, since It is depended on the application the burner has been installed**

## 20. 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 external feeder up with wood-pellet, by following the direction of paragraph 14 16, "Feeder filling procedure".
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 ( $0.8 \times 30 = 24\text{kg/hr}$ ). 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. Set the parameter "Feeder multiplier" at the right value, so the wood-pellet is supplied from the external feeder, to be driven by the internal feeder to the burners fire chamber, without keeping any wood pellet inside the internal feeder.
12. When the maximum power of the burner is reached , then adjust the burners flame by calibrating the air. The burning air is calibrated by changing the value of "Overflow pellet's air" at Manufacturer's menu





## 12. Start of the burner

1. Activate the controller by pressing the button



2. It is written on the LCD screen the following

CH:---- °C WUW:----°C  
STOP

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.

CH temperature WUW temperature


CH:39.5°C WUW:23.6°C  
IGNITION...

**Burner function**




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 the 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 boiler's door, clean the burner's 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**".

## 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 burner's tube.
3. Remove any ashes and impurities from burner's 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 screen
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. Feeder's 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. Self cleaning system

**Self cleaning can be activated only when the burner is equipped with an electro-valve and it is connected with an air-compressor.**

**Minimum requirements for air-compressor:** 50Lt at 7bar, or 25Lt at 8 bar

**SELF CLEANING FREQUENCY TIME :** It is the maximum time the burner can work without interrupted by Self Cleaning procedure.

**SELF CLEANING TIME:** It is the time the electro-valve is activated to remove the ashes form the burner.

**Activation of self cleaning:** It is activated by changing the parameter "SELF CLEANING TIME" from "Off" to "xsec" (for example 3sec)

## 18. Burners safety systems

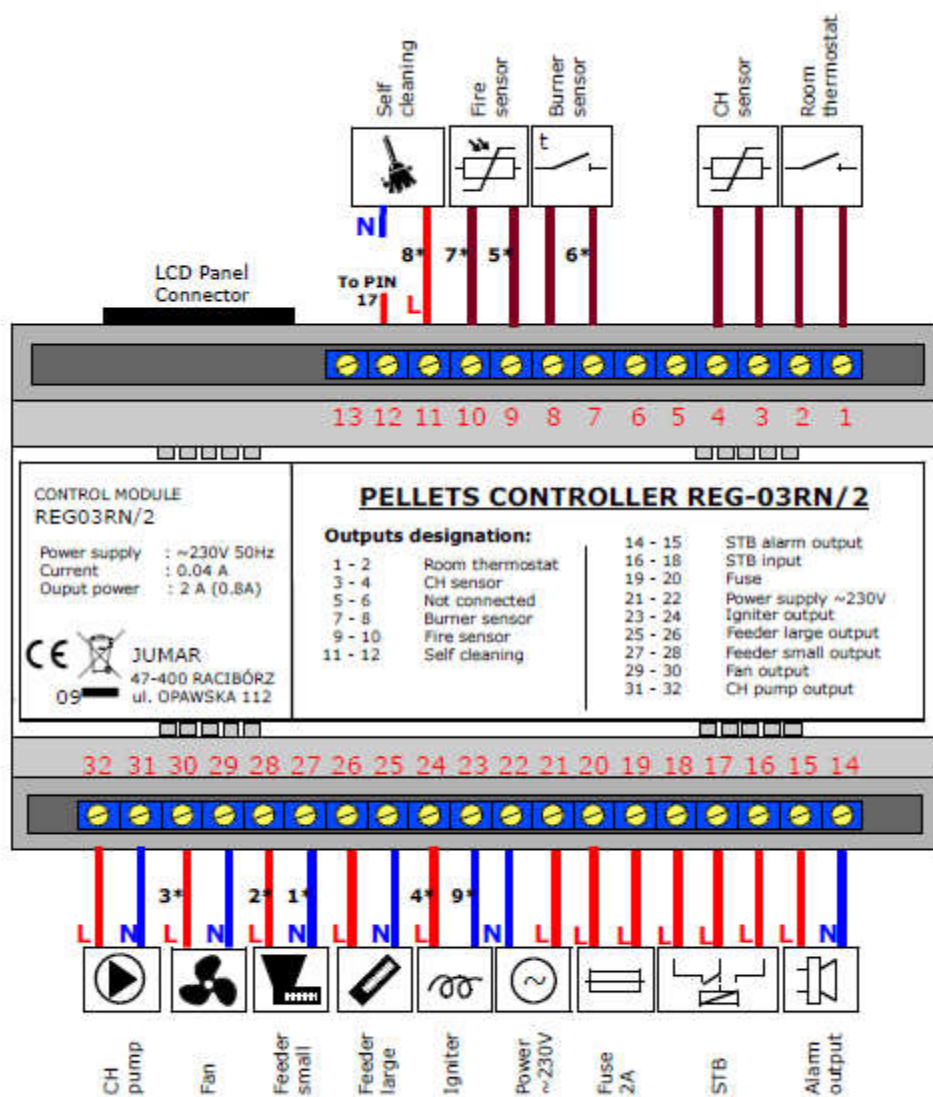
**For total, fail-safe security, the burner is equipped with four safety systems:**

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.

## 19. Errors

Indication	Description	Solution /
<div> CH: !!!!!      WUW: !!!!!  STOP </div>	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"	<p>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</p>	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"	<p>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.</p>	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	<p>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.</p> 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.
	3. Problem during ignition procedure	Check the cable from feeder to the controller
		<p>Burner's tube hasn't been cleaned properly</p> 1. Clean the burner 2. Restart the controller and set the burner at automatic mode.
		<p>Igniter doesn't work</p> 1. Change the igniter inside the burner.

## 20. Electrical diagram REG 03/2C



\* number on cable



## **20. Warranty**

2-years in metal parts

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

1-year in electronic controller

No warranty is given for the heating element (igniter)

The logo for Megatherm, featuring the word "Megatherm" in a stylized, green, italicized font with a slight shadow effect.

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