MICROPROCESOR CONTROLLER OF THE PELLET'S BURNER

REG-03 *Mini*

REG-03 *Mini*

JUMAR

REG-03 *Mini*

REG-03 *Mini*

MODE

INFO

MENU OK

INSTRUCTION OF INSTALLING

AND THE MAINTENANCE

IGNITER	FEEDER	FAN	FAN SPEED REGULATOR	CO — CH PUMP
STB IN-BUILD	CLOCK /TIMER	ROOM THERMOSTAT	ALARMS	LANGUAGES

JUMAR

TABLE OF CONTENTS

Thanks you for choosing our product.

This instruction should make the installation of the driver easier and make you accustomed to the maintenance and the safe using of the device. Before installing please read the instruction carefully and get to know the functioning of the driver.

Any questions occur, contact with the JUMAR company.

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SAFETY OF OPERATIONAL USE

- ◆ Before using read carefully the instruction.
- ◆ Installing and connecting the regulator should be done by a professional staff. All available safety requirements should be taken into consideration.
- ◆ Before switching the regulator on, the accuracy of all connections ought to be checked.
- ◆ Guarantee proper working conditions according to the device's specification.

INSTALLATION GUIDANCE

- ◆ Do not power the device from the same source of power as others devices of high power without appropriate net filters.
- ◆ Avoid putting signal wires in a direct contiguity and in parallel to energetic and powering wires.
- ◆ Avoid closeness of remotely-controlled devices, loads of high power devices with a group or phase regulation of power and other devices producing large interference of impulses.
- ◆ When switching on the feed mechanism, remember that in the installation of a building a breaker or a circuit breaker should exist. This part ought to be near the device, easy to reach by the operator and marked as a device disconnecting the mechanism.
- ◆ For problems caused by disobeying the instruction, the manufacturer is not responsible for.

TECHNICAL DATA

Burner handling:	250kW / 500kW*
Sensors:	KTY-210 / PT1000**
Measurement range:	-20 – 120°C / -20 – 400°C**
Measurement resolution:	0.1 °C
Time of measurements:	1 s
Data's reading:	Graphics OLED display 16x100px

Control outputs:

• Igniter (relay):	~230V 3A (2A)
• Feeder (triac):	~230V 2A (0.8A)
• Fan (triac):	~230V 2A (0.8A)
• Pump (relay):	~230V 2A (0.8A)

Protection:

• Temperature (build-in)	STB (80°C-400°C)
• Electric (external)	Fuse 4A

Inputs:

• Room thermostat:	Open contact
• Fire sensor:	Opto element
• Heating sensor:	KTY-210 / PT1000**
• Burner feeder sensor:	Bimetal 75°C
• STB sensor:	Bimetal (95°C-400°C)

Visual signalling:

• LCD screen:	Messages, measurements, settings
• Sound:	Alarms, buttons

|	
Power supply:	~110-230 V 50/60Hz 2VA
Working temperature:	5°C - 50°C

Only in >V2.0 firmware

**Optional*

THE IMPLEMENTATION

REG – 03Mini controller is a modern microprocessor device controlling the work of the pellet's burner. Implementation of advanced driver's algorithm and the flame sensor ensures the simplicity of maintenance and the full automatization of the burning process. The usage of a graphic organic (OLED) display assures an easy and clear interaction between the use and the device. The driver is adapted also to working with the central heatings pump. Thanks to these functions, the device can be used in expanded installations of the central heating without using additional steering devices. The regulator is also equipped with an output of room thermostat which enables the change of the furnace's working parameter after reaching a particular temperature in the room. To controller added timer functions – now user can set heating time.

THE PRICIPLE 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 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 (STB).

THE CONNECTION DIAGRAM
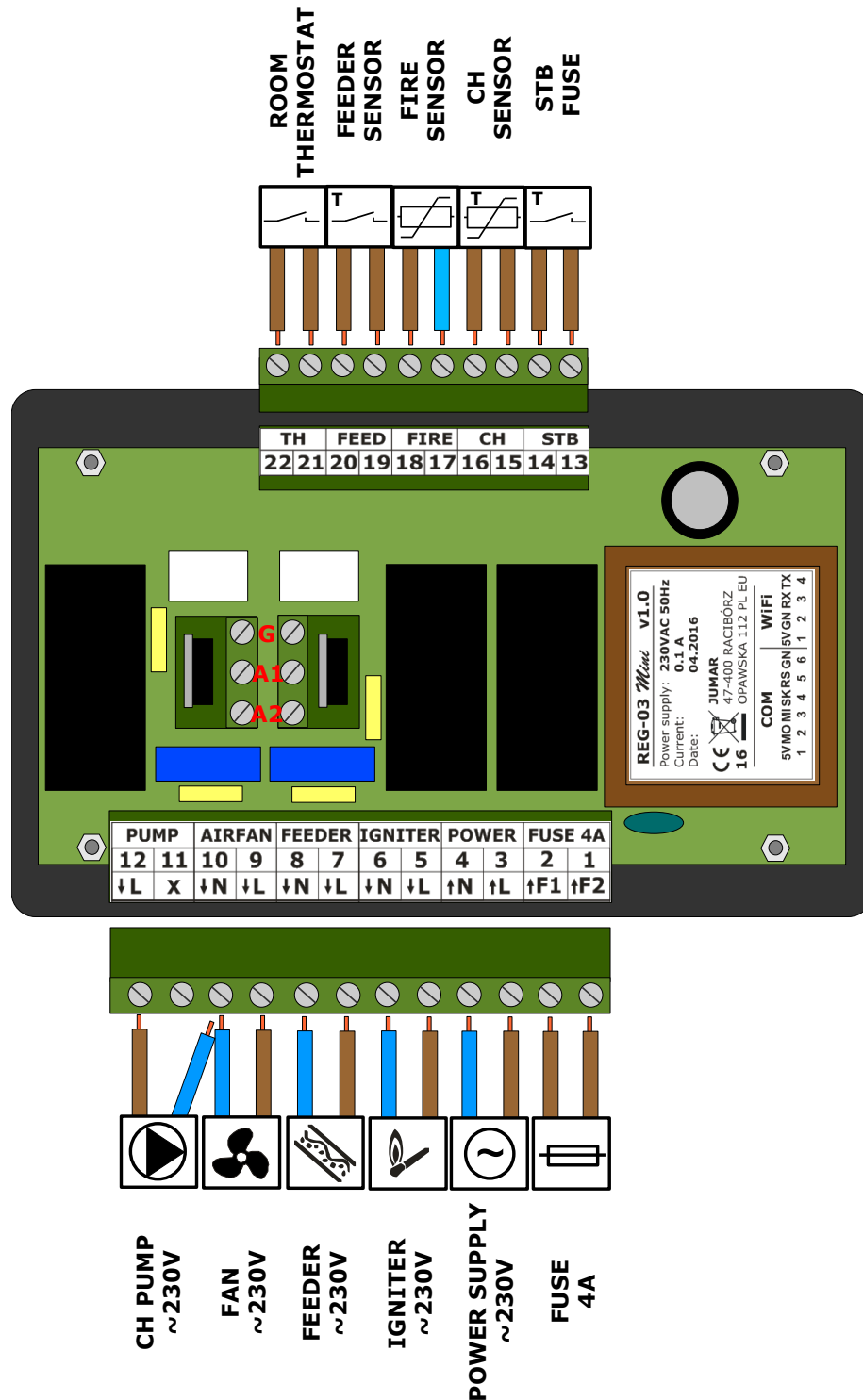
The figure above shows a scheme demonstrating connection of sensors and controlling elements to the controller. Before connecting the regulator to network, it is necessary to check all the connections carefully. One has to take particular note of not placing ~230V power supply cables instead of the sensor. Improper connection may permanently damage the microprocessor device.

CONNECTION DESCRIPTION

Terminal No.	Designation	Input/ Output	Description
1 2	F2 F1	input input	Main fuse connector
3 4	L N	input input	Power supply connector
5 6	L N	output output	Igniter connector
7 8	L N	output output	Feeder connector
9 10	L N	output output	Fan connector
11 12	x L	x output	Central heating pump connector
13 14	STB STB	input input	STB fuse connector (bimetal 95°C)
15 16	CH CH	input input	Central heating sensor connector
17 18	FIRE (-) FIRE (+)	input input	Fire sensor connector (opto element)
19 20	FEED FEED	input input	Burner feeder sensor connector (bimetal 75°C - 90°C)
21 22	TH TH	input input	Room thermostat/External control connector (if not use, put a jumper)

Fire sensor (polarity):


FIRE (+) ➔ Input 18

FIRE (-) ➔ Input 17
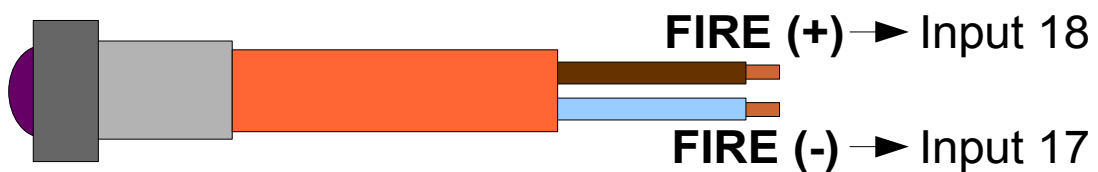
CAUTION!!

Bad connection of the sensor causes the weak response of the sensor to the flame/fire.

In the picture below, illustrates an example of placing sensors:

Sensor No.	Designation	Name	Description
1	STB	STB Sensor	STB sensor (securing sensor) has to be places in the boiler along with the CH sensor.
2	CH	CH Sensor	Central heating water sensor (CH).
3	FEED	Burner Sensor	The sensor protects the burner against excessive temperature growth. Bimetal sensor has to selected according to the burner.
4	FIRE	Fire Sensor	The flame sensor has to be placed so that it could detect flame and heat in the furnace/boiler. You should not subject it to high temperatures. When connecting, you have to take note of polarization of the sensor (+/-).
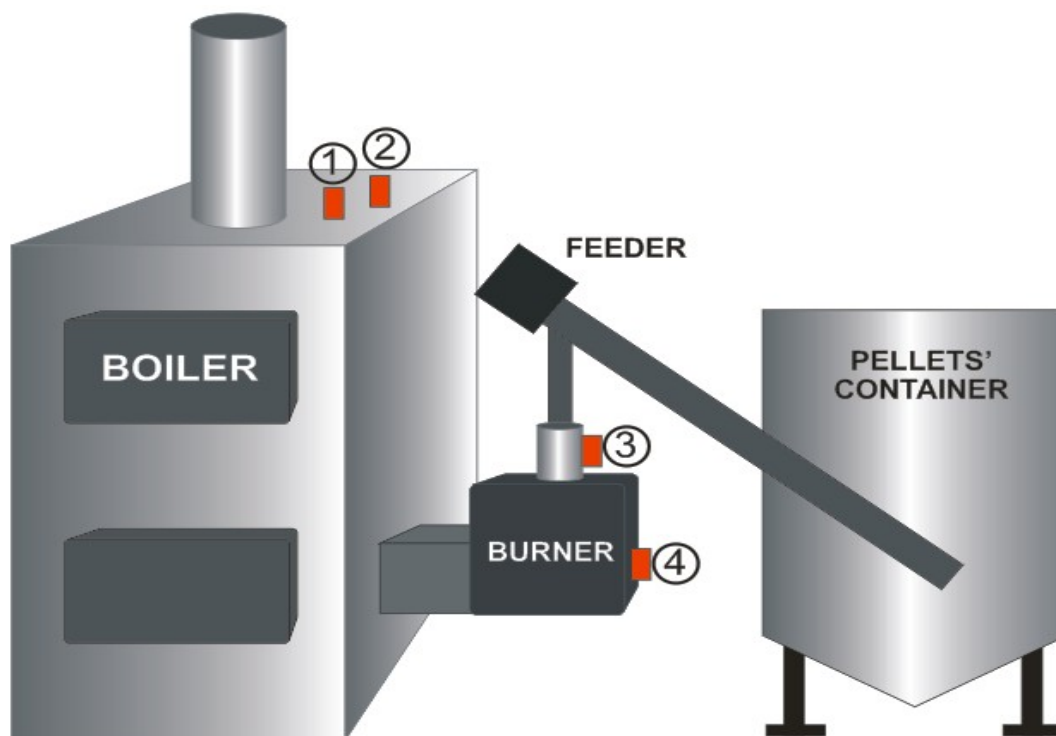
OPERATION CONTROLLER

In the picture below, illustrates a controller panel with descriptions:

BUTTON'S DESCRIPTION

| Button Type	Function 1	Function 2 (MENU 1 sec)	Function 3 (MENU 2 sec)
MENU OK	---	Temperature changing and acceptance of new value.	Enter to menu, sub menu or change a parameter's value. New value can be accepted by this button.
INFO ▲	Screen change	Increase value of temperature.	Goes up in the settings menu, sub menu or increase a value of parameter.
▼	---	Decrease value of temperature.	Goes down in the settings menu, sub menu or decrease a value of parameter.
MODE	Working mode change (2 sec)	Exit from temperature settings.	Exit from menu or sub menu.

THE DRIVER'S HANDLING

After switching the driver on, on the LCD screen appears the programme's logo defining the type of the driver and the manufacturer's logo.


After a few seconds controller show measurement panel. The following figure shows an example of the appearance of LCD screens.
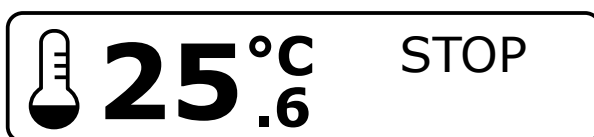
By using the **INFO** ▲ button, you can switch to the display visualizing the action of particular burner's elements: ventilator, igniter, feeder, pump, as well as brightness from the flame sensor.
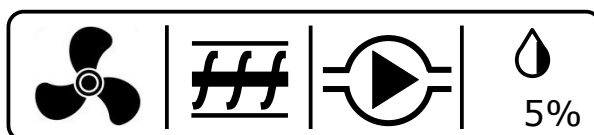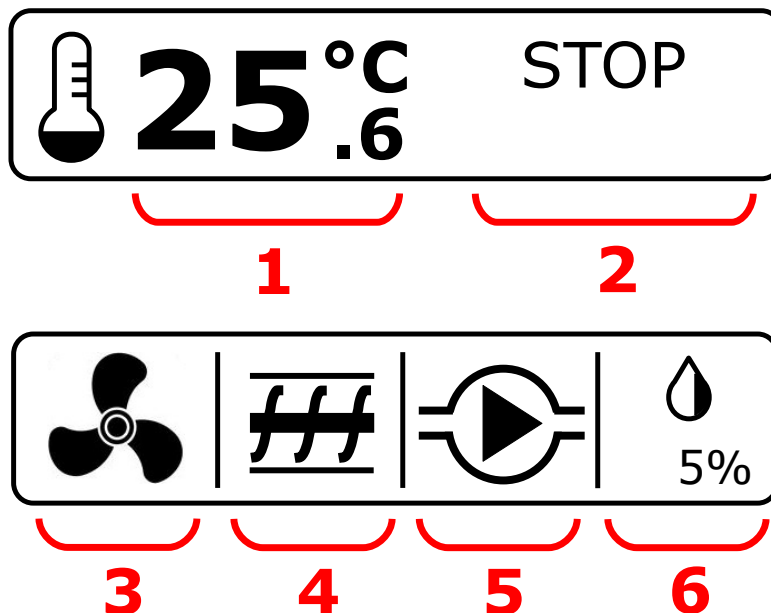

In the picture below, illustrates how change a info screen:
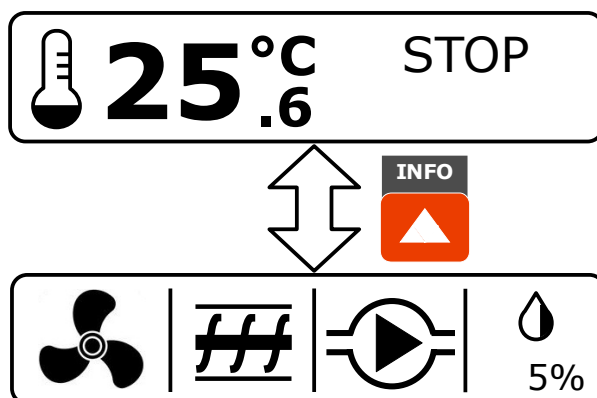
MEASURE PANEL DESCRIPTION

In the picture below, illustrates description of the icons on measurement panel.

ICONS:

ICON	ICON DESCRIPTION
🌡	Temperature icon **(1).**
STOP	Burner state **(2)**.
❂	Icon indicating the fan operation **(3)**. If fan working icon will be animated.
∫∫∫	Icon indicating the igniter operation **(4)**. Is displayed alternately with the icon of the feeder.
♯♯	Icon indicating the feeder operation **(4)**. Is displayed alternately with the icon of the igniter.
⊳	Icon indicating CH pump operation **(5)**.
◊	Icon indicating the brightness of the flame in the burner **(6)**.

ALARMS

 If the sensor is damaged or it is not connected, the temperature display will show a "−−" image and "**ALARM**" text, along with giving sound alarm. The alarm is switched off automatically after failure removal (connecting the sensor or replacing it with a new one). The figure below visualized an exemplary screen informing about missing sensor or sensor damage:
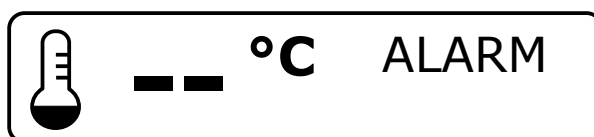
The alarm will be also activated, if the temperature exceeds safe value (90ºC). Exceeding the temperature causes the burner to stop and switch into damping mode. The burner's operation is blocked. The display will show the following message:
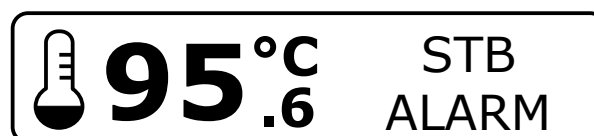
STB alarm has to be reseted manually after decreasing the temperature blow critical value. The [MODE] button, held for about 3 seconds, is used for resetting.

The controller also monitors the temperature of burner's case. If the temperature will exceed above pre-set value, the controller will launch the burner protection procedures and display a message:
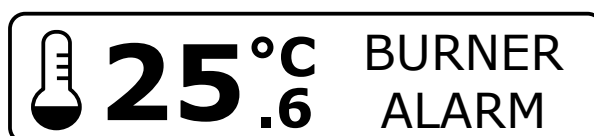
The burner's operation is blocked during alarm. After decreasing the temperature below critical, the controller automatically returns into previous state.

WORKING MODES

The controller may work in two working modes („**STOP**", „**AUTO** "). The change of the working mode happens when the [MODE] button is pressed for 3 seconds. on the regulator's panel. The „**STOP**" mode activates procedures connected with the burner's putting out i.e. burning off and cleaning. Short press [MODE] button displays the current 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.

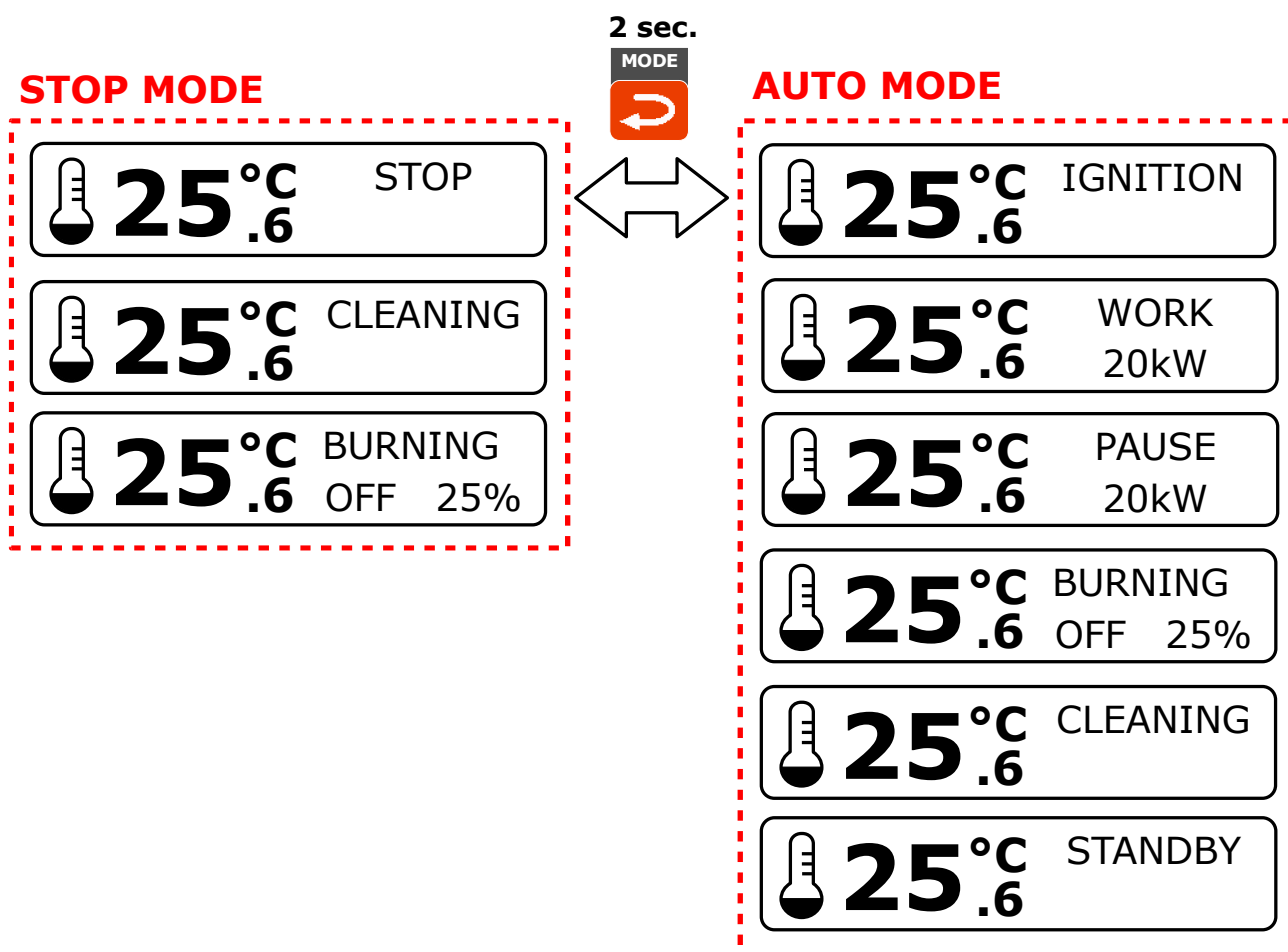| FUNCTIONS NAME	FUNCTION DESCRIPTION
STOP	Burner stopped.
FILLING	Filling the feeder. Filling stops automatically after about 10 minutes.
IGNITION	Ignition of pellet. The mode would be automatically changed after detecting a flame by the sensor.
CLEANING	The cleaning of the burner from he left ashes. 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.
PAUSE	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).
NO PELLET	The driver carries out three trials of ignition of the pellet. The lack of flame may be caused by: the lack of the pellet in the container, when the big feeder was not filled with the pellets, the flame's sensor is dirty or broken.
BURNER ALARM	If the temperature of burner rises over the maximum value, the driver would activate the procedures of the burner's protection.
STB ALARM	Boiler overheat alarm. Burner will be stop. Alarm should be RESET by user.

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 picture, the way of moving between the particular driver's modes. In the „**AUTO**" mode, the regulator steers the functions automatically and depends on the parameters set by the user. In this mode the status of the flame is constantly monitored. The decline of the flame activates functions linked to the ignition of the pellet (if the particular burner's function requires it). The driver carries out three trials of ignition of the pellet. The lack of flame may be caused by: the lack of the pellet in the container, when the big feeder was not filled with the pellets, the flame's sensor is dirty or broken.

CAUTION!!

The flame's sensor should be cleared regularly. The smudge of dirt may be the reason of false interpretation of the burner's status, causing for example, a higher fuel consumption without full burning of the pellet.

2 sec.
MODE

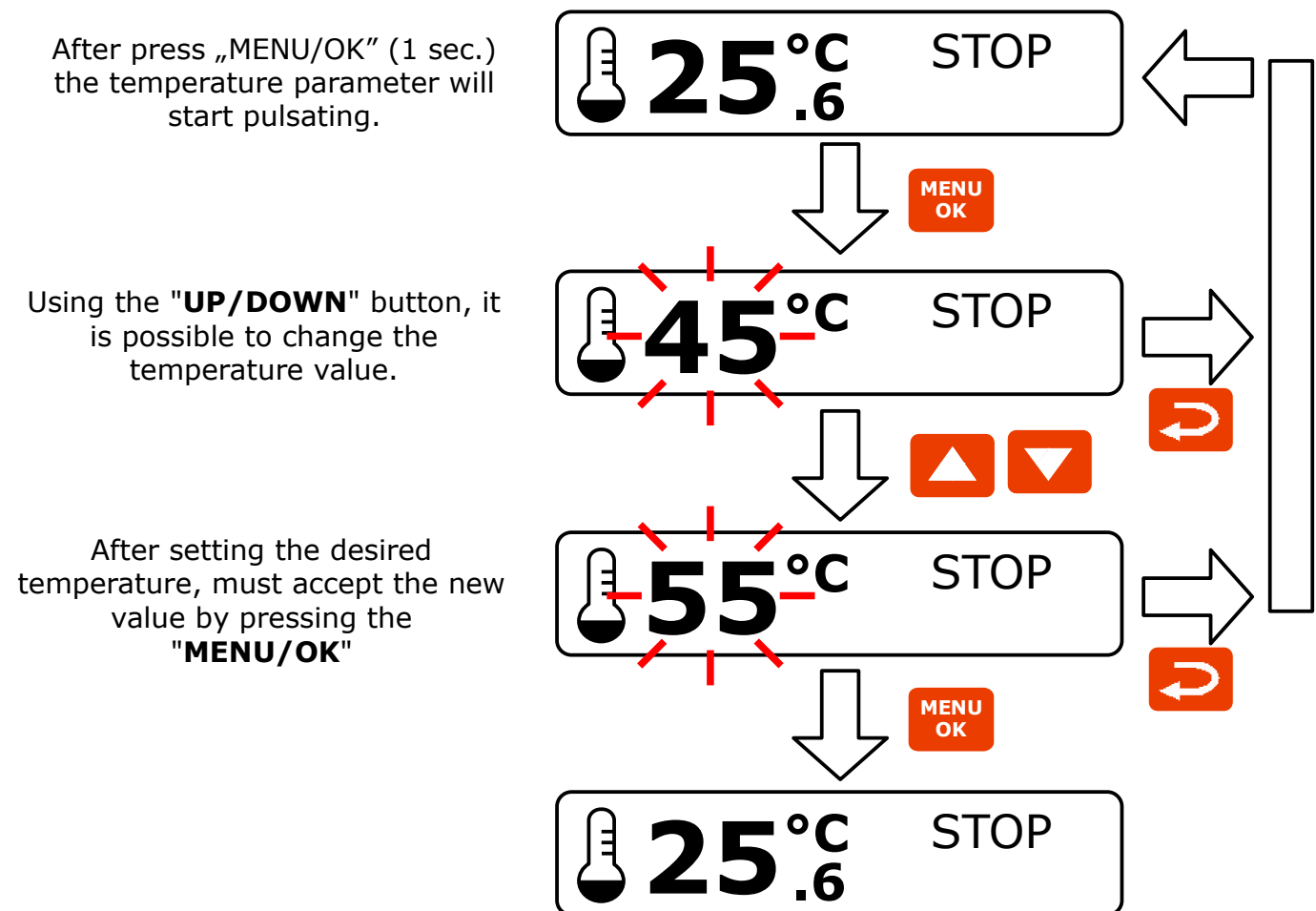**STOP MODE**

25.6 °C	STOP
25.6 °C	CLEANING
25.6 °C	BURNING OFF 25%

AUTO MODE

25.6 °C	IGNITION
25.6 °C	WORK 20kW
25.6 °C	PAUSE 20kW
25.6 °C	BURNING OFF 25%
25.6 °C	CLEANING
25.6 °C	STANDBY

TEMPERATURE SETTING

The controller has an ability to set heating temperature in the range of 35°C to 85°C (**KTY** sensor) or up to 300°C (**PT1000** sensor). After reaching the set temperature, the controller switches into stand by mode or completely turns the burner off. Decreasing the temperature below the set value (Heating water temperature - CH boiler hysteresis) activates the burner function. If there is no flame in the burner, it will be ignited again.

In the picture below, illustrates how change a value of temperature:

After press „MENU/OK" (1 sec.) the temperature parameter will start pulsating.

25°C .6 STOP

MENU OK

Using the "**UP/DOWN**" button, it is possible to change the temperature value.

45°C STOP

After setting the desired temperature, must accept the new value by pressing the "**MENU/OK**"

55°C STOP

MENU OK

25°C .6 STOP

MENU STRUCTURE

Use the button [MENU OK] go into the settings menu (press by 2 seconds). The driver would switch into the settings mode and would show the first group of settings - „SET HEATING". To change the group, use the buttons [▼] [▲] . In order to leave the menu, press [⮌] . To activate parameters from a particular group to choose the setting, a proper group should be chosen, then the button [MENU OK] on the driver's panel should be used. On the screen ought to appear the first group of the particular group's parameters. In order to make changes of the parameters by pressing button [MENU OK] . To change the values [▼] [▲] buttons ought to be pressed. Press [MENU OK] so as to save the new settings. In the picture below an exemplary change of one of the parameters is shown. Controller leave menu automatically after 40 seconds.
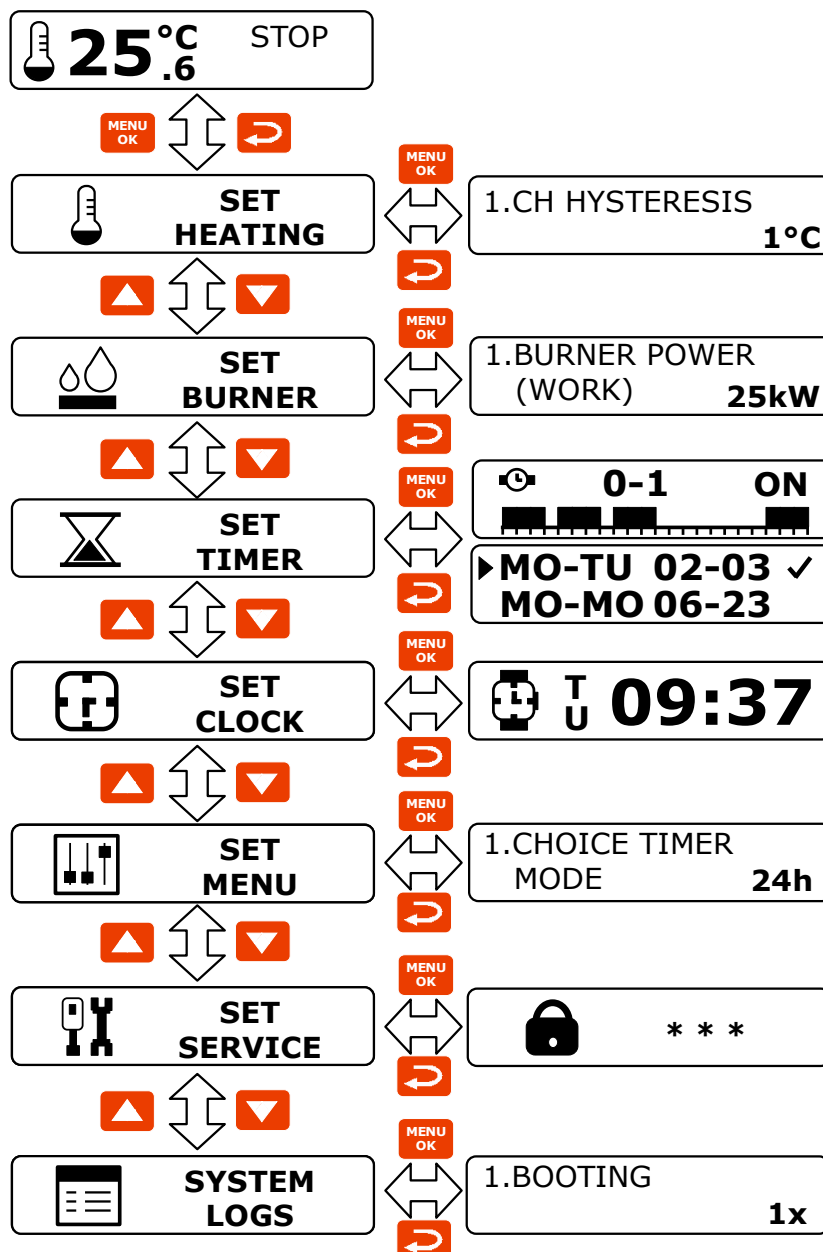
SETTINGS' TABLES

➢ SET HEATING:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	CH HYSTERESIS	°C	1 - 30°C	2°C
2	CH PUMP TEMPERATURE	°C	20 - 80°C	35°C

➢ SET BURNER:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	BURNER POWER (WORK)	kW	10 - 100kW	30kW
2	BURNER POWER (PAUSE)	kW	2 – 9kW	3kW
3	BURNER MODE	---	single/contin	contin
4	FEEDER FILLING	---	---	---

➢ SET TIMER:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	TIMERS SETTINGS	HOURS	0 — 23	0

➢ SET CLOCK:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	CURRENT DAY	DAY	MO — SU	---
2	CURRENT HOUR	HOUR	00 — 23	---
3	CURRENT MINUTES	MINUTES	00 — 59	---

➢ SET MENU:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	CHOICE TIMER MODE	---	24H/WEEK °C24H/°CWEEK	24H
2	CHOICE LANGUAGE	---	PL/EN/LT/UK	PL
3	FACTORY SETTINGS	---	OK	---

➢ SET SERVICE:

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	SERVICE CODE	---	---	---

➢ **SYSTEM LOGS:**

PARAMETER NO.	PARAMETER NAME	UNIT	SETTING RANGE	DEFAULT VALUE
1	BOOTING	---	---	---
2	IGNITIONS	---	---	---
3	NO FUEL	---	---	---
4	STB ALARM	---	---	---
5	BURNER ALARM	---	---	---
6	SENSOR ALARM	---	---	---
7*	AVERAGE CONSUMPTION	---	---	---
8*	TOTAL CONSUMPTION	---	---	---

*Only in >V2.0 firmware

CAUTION!!

The manufacturer's settings are only the suggestions. All values depend on the kind of solid fuel, installation, the user's requirements, etc.

The producer of the controller reserves the changes of the ranges of the settings in next versions of the firmware.

MENU DESCRIPTION

Given below are detailed descriptions of specific setting groups the controller menu consists of. There are seven groups which are looped. If you are in the last group and would like to switch lower, then the first group will be selected again. Similarly, when you are in the first group and would like to switch to a higher one - you will switch to the last group.

EXAMPLE MENU GROUP:

- **(1)** - Group icon;

- **(2)** - Group name;

EXAMPLE PARAMETER IN MENU:

- **(1)** - Parameter number;

- **(2)** - Parameter name;

- **(3)** - Parameter value;

PARAMETERS

SET HEATING

```
┌─────────────────────────────┐
│        🌡      SET          │
│           HEATING           │
└─────────────────────────────┘
```

In this group of adjustments, the user has the ability to set the adjustments related to temperature. Given below are the parameters you can change.

Parameter's description:

No	Parameter name	Description
1	CH HYSTERESIS	The value of the furnace's temperature has to decline to start the working mode of the boiler or ignite the pellets again. Setting the hysteresis more than 5°C is reasonable only when heating the central heating buffer.
2	CH PUMP TEMPERATURE	The threshold temperature of starting the pump of the central heating (CH pump). The pump works according to the user's settings if the input of the room thermostat is contact. The pump is also automatically switched on if one of the emergency status appears (e.g. overheating of the furnace, malfunction of the sensor, reaching the protection temperature of the furnace etc.).

SET BURNER

```
┌─────────────────────────────────────┐
│     ◌◌           SET                 │
│     ███        BURNER                │
└─────────────────────────────────────┘
```

In this group of adjustments, the user has the ability to set the adjustments related to the burner. Given below are the parameters you can change.
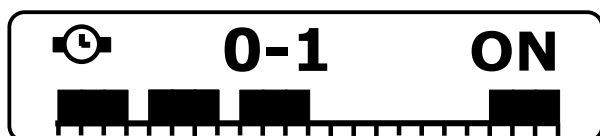
Parameter's description:

| No	Parameter name	Description
1	BURNER POWER (WORK)	The power of the burner in the working function (the temperature of the heating water is lower than the pre-set). The burner's power is a visual value depending on the quality of the applied pellet. The power should be chosen as if the full burning of the pellet took place and there would be no decline of the embers in the burner.
2	BURNER POWER (PAUSE)	The power of the burner in the function of maintain (the temperature of the heating water is higher than the pre-set.). The chosen power of the burner is a visual value depending on the quality of the applied pellet. The power should be chosen as if there was no decline of the embers in the burner and there was no further increase of the boiler's temperature.
3	BURNER MODE	The burner may work in a continuous mode (after reaching the pre-set temperature, the power is lowered according to the parameter **Burner power (pause)**) or in the single mode (after reaching the pre-set temperature, the burner is put out). The single mode is recommended for heating the central heating buffer and the hysteresis of the CH boiler over $5^{\circ}C$.
4	FEEDER FILLING	Switch on or off feeder filling pipe. Function only active when controller is in **STOP MODE**.

SET TIMER

```
      ⌛        SET
              TIMER
```

24H TIMER   **WEEK TIMER**

```
 🕐    0-1      ON        ▶MO-TU 02-03 ✓
 ▮▮ ▮▮ ▮▮    ▮▮           MO-MO 06-23
```
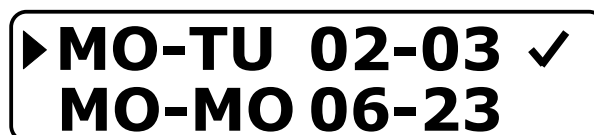
      In this group of adjustments, the user has the ability to set the time programs determining the burner's operation time. In "**SET MENU**", the user can select the type of timer (**24H**, **WEEKLY**, **°C+24H, °C+WEEKLY**). Selection of 24H results in activation of daily timer (24 hours). Whereas the weekly one causes launching of a weekly timer with four time intervals. Additionally, user can select the timer function: whether to switch on/off the burner (**24H**, **WEEKLY**) or whether the temperature should be reduced to minimum temperature (**°C+24H, °C+WEEKLY** functions).

EXAMPLES OF TIMER ADJUSTMENTS IN 24H MODE, AS WELL AS IN WEEKLY MODE

- **TIMER 24H**

The figure below shows exemplary setting of burner operation, with a timer in 24H mode.

```
 🕐    0-1      ON
 ▮▮ ▮▮ ▮▮    ▮▮
```
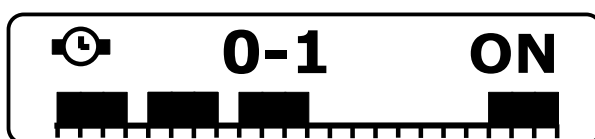
The burner works in the following hours: 0-3, 4-7, 8-11, 21-0. Heating is turned off between the following hours: 3-4, 7-8 and 11-21.

After selecting the timer adjustments, the first time interval will start pulsating. Pressing the **MENU OK** button again will cause switching into another interval. ▼ ▲ buttons are used for changing the status (off/blowing/heating) in given hour interval The ↩ button causes exiting from settings and saving the changes.

The following figure shows exemplary setting of time interval for 24-hour timer.

After entering the sub menu, the first hour interval (0-1) will start pulsating.

☻ **0-1**   **OFF**

MENU OK
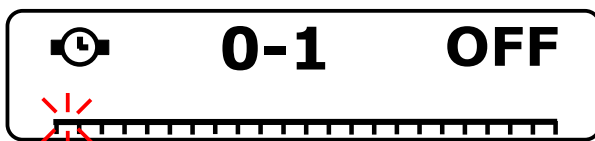
Pressing the "**MENU**" button will cause switching to another hour interval (1-2).

1-2   **OFF**

▲

Using the "**UP**" button, it is possible to change the hour interval (1-2) into the burner switched off.

1-2   **ON**
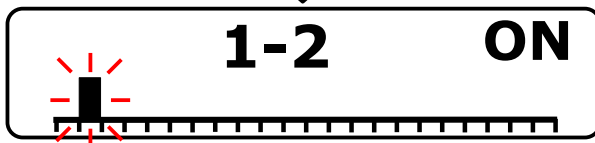
The burner will provide heating between 1:00 AM and 2:00 AM

- **TIMER WEEKLY**

The figure below shows exemplary setting of burner operation, with a timer in week mode. This timer have four full editable banks.
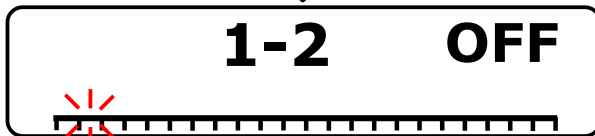
▶**MO-TU 02-03** ✓
MO-MO 06-23
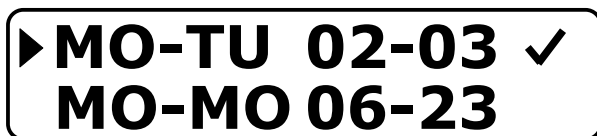
The burner works on the following days: Monday and Tuesday between 2 AM and 3 AM. On remaining days and hours, the heating function is stopped.

The following figure shows exemplary setting of time interval for weekly timer.

Pressing the "**MENU**" button results in switching to the first parameter program beginning day (the parameter is blinking).

▶**MO-TU 02-03**
MO-MO 06-23

Pressing the "**MENU"** button again will cause switching to another parameter - program completion day.

▶**MO-TU 02-03**
MO-MO 06-23

The "**UP/DOWN"** buttons change the day.

▶**MO-WE 02-03**
MO-MO 06-23

Pressing the "**MENU"** button again will cause switching to the time of program start.

▶**MO-WE 02-03**
MO-MO 06-23

Pressing the "**MENU"** button again will cause switching to the time of program stop.

▶**MO-WE 02-03**
MO-MO 06-23

Pressing the "**MENU"** button again will cause switching to burner operation mode. The "**UP/DOWN**" button changes the mode to burner turned on/off.

▶**MO-WE 02-03 _**
MO-MO 06-23
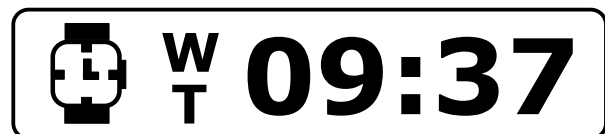
Pressing the "**MENU**" button again will result in exiting edition mode.

▶**MO-WE 02-03 ✓**
MO-MO 06-23

The burner will provide heating on Mondays, Tuesdays, Wednesdays, between 2:00 AM and 3:00 AM.

▶**MO-WE 02-03 ✓**
MO-MO 06-23

SET CLOCK

	SET CLOCK		⊕ WT 09:37

In this group of settings, the user has ability to set current day of the week and time. It is very important to set these parameters, e.g. in order to ensure correct function of time programs. Data and time are kept after lack of power for approx. 48 hours. After this time it is necessary to check the timer adjustments again.

Parameter's description:

No	Parameter name	Description
1	CURRENT DAY	Setting of current day of week.
2	CURRENT HOUR	Setting of current hour.
3	CURRENT MINUTES	Setting of current minutes.

SET MENU

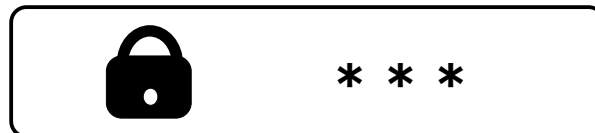|	SET MENU

In this group of adjustments, the user has ability to change the parameters of controller's function.

Parameter's description:

No	Parameter name	Description
1	CHOICE TIMER MODE	Changing timer mode **24H, WEEK, °C+24H, °C+WEEK**.
2	CHOICE LANGUAGE	Changing the menu language.
3	FACTORY SETTINGS	Return to factory settings.

SET SERVICE

🔧 **SET SERVICE**	🔒 **✶ ✶ ✶**

Controller service settings are available in this group, selected once when fitting the controller to the device. These settings are not deleted when restoring default (factory) settings.

SYSTEM LOGS

📋 **SYSTEM LOGS**

Counters for errors and alarms generated by the controller are available in this group. Saved errors are kept in the non-volatile memory of the controller and one can delete them using service codes only. Only device's manufacturer or service technician have access to them. Total and average consumption can be reseted by using a code **001** on **Set Service** menu.

Parameter's description:

No	Parameter name	Description
1	BOOTING	Controller booting counter (x)
2	IGNITIONS	Ignitions counter (x)
3	NO FUEL	No fuel alarms counter (x)
4	STB ALARM	STB alarms counter (x)
5	BURNER ALARM	Burner's feeder alarm counter (x)
6	SENSOR ALARM	Sensors alarm (x)
7*	AVERAGE CONSUMPTION	Pellets average consumption (kg/h)
8*	TOTAL CONSUMPTION	Pellets total consumption (kg)

Only in >V2.0 firmware

TERMS OF WARRANTY

Dear User,

First of all, we would like to thank you for choosing our product. We are sure that you will be satisfied with this choice. We design our devices in order to meet your requirements and guarantee future trouble-free use. We ensure correct hardware function, provided that it is used according to its purpose and rules contained in the attached instruction manual. **JUMAR** gives warranty in case of all sorts of manufacturing defects and obliges to repair or replace faulty device (depending on **JUMAR**'s decision). Warranty period is:

24 months from purchase date

Rights resulting from the warranty are granted only when the following terms of obtaining warranty services are met.

Terms of acknowledging the warranty claims:

1. The warranty is valid only when the user can provide an original invoice or purchase receipt for this device.

2. The faulty product should be delivered to the service in appropriate packaging, protecting it against damages during transport. **JUMAR** will cover transport costs when returning the repaired or replaced product only if the device was damaged due to manufacturer's fault.

3. **JUMAR** will repair or replace equipment in possibly short time, appropriate to the damage complication degree (maximum of 14 working days or 31 if this requires shipping of hardly available parts).

4. The warranty does not cover damages caused by modifications or improvements in the product, unless doing so was permitted by **JUMAR** in written form.

5. Replacements of the device or its parts does not cause extension of the warranty.

The warranty does not cover:

1. Damages resulting from excessive component wear caused by improper use. The product should used according to attached instruction manual.

2. Damages caused by incorrect setup or product use not in accordance with technical or safety standards.

3. Damages caused by attempted repair performed by third parties or attempted repair provided by oneself.

4. Damages cased during transport, due to inappropriate packaging.

5. Damages caused by mechanical impact, being struck by lightning, flooding, fire, over-voltage or other causes independent of the manufacturer.

6. In order to avoid unnecessary complications and inconveniences, prior to contacting the service, we suggest reading the **INSTRUCTION MANUAL** carefully or contacting **JUMAR**.

JUMAR's responsibility is limited to the value equalling the price of faulty product.

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