

## 9. Disassembly of the regulator

If it is necessary to disassemble the regulator, do the following:

- turn the main switch off
- disconnect the boiler from electricity mains
- demount the regulator
- demount the connectors from the regulator

## 10. Technical specification of the regulator

Power supply

230 V  $\pm$  10 %, 50 Hz

< 4 VA

Input (not including the ventilator and pumps)

-9 - 109°C  $\pm$  1°C

Range of measuring the boiler temperature

-30 - 500°C  $\pm$  1°C

Range of measuring the flue gas temperature

2 A/230 V

## Notes

## Appendix nr. 3 to:

### Instruction manual ATTACK DP – valid since 1. 5. 2010

### Instruction manual ATTACK DPX – valid since 1. 5. 2010

This Appendix nr. 3 (further just the „Appendix“) to the Instruction manual ATTACK DP and Instruction manual ATTACK DPX valid since 1. 5. 2010 (further just the „Manual“) is valid and comes into effect since 1. 7. 2014.

The following issues are contained in this Appendix:

#### Instruction manual ATTACK DP - chapters:

- Basic description of the regulator
- Connection of the regulator by the hydraulic schemes
- Regulator control
- Setting and description of parameters
- Error messages

#### Instruction manual ATTACK DPX - chapters:

- Basic description of the regulator
- Connection of the regulator by the hydraulic schemes
- Regulator control
- Setting and description of parameters
- Error messages

The electronic regulator described in the above mentioned chapters is no more used in the ATTACK PROFI boilers.

The Appendix nr. 3 replaces description of setting the regulator in all the above mentioned chapters.

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6. Setting the service parameters
7. Error messages
8. Electrical scheme of connection
9. Disassembly of the regulator
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## 7. Error messages

The connection of all sensors of the regulator is permanently monitored.

If the regulator detects that some of the sensors is not connected, the error messages are displayed. Messages about the boiler overheating or fuel shortage are also displayed.

### Error messages displayed

[FUEL] – is displayed, when there is not enough fuel in the boiler. The sufficient amount of fuel is defined by the parameter 90, where the figure 90 is related to the adjusted value 90 °C. Then, if the flue gas temperature decreases under this adjusted value within the time Fb30 (time of boiler stop by fuel shortage), the regulator displays the [FUEL] message. To start the boiler again, it is necessary to remove the message by the STOP button and then to press the START.

[HOT] – is displayed, when the flue gas temperature exceeds the maximum permitted value set by the parameter c300 (means 300°C). The ventilator is stopped in this case. After the temperature decreases under the adjusted flue gas temperature, the ventilator is started again.

[E 1] – is displayed, when the boiler temperature sensor fails or when it is not connected. In such case is the regulator taking actions to ensure the safety of the boiler – the fan is stopped (if it is currently in operation) and the circuit pump is started for eventual safe boiler cooling. After the cause of error is removed, the error message can be erased by the STOP button.

[E 2] – is displayed, when the boiler temperature exceeds the boiler overheating temperature A99. The regulator stops the flue gas fan and starts the circuit pump. The error message can be removed by the STOP button after the boiler temperature decreases to the safe value.

[E 8] – is displayed, when the additional sensor fails (in the D.H.W. tank or accumulation tank). If this sensor works for the D.H.W. tank, the warning is blocked. If the sensor works for the accumulation tank, the pump will be permanently working. This error message cannot be removed by the STOP button. It is automatically erased after the sensor failure is repaired.

[E128] – is displayed, when the flue gas temperature sensor fails. In this case is the boiler control switched to regulate according to the boiler temperature. The error message is erased automatically after the fault of the flue gas temperature sensor is solved.

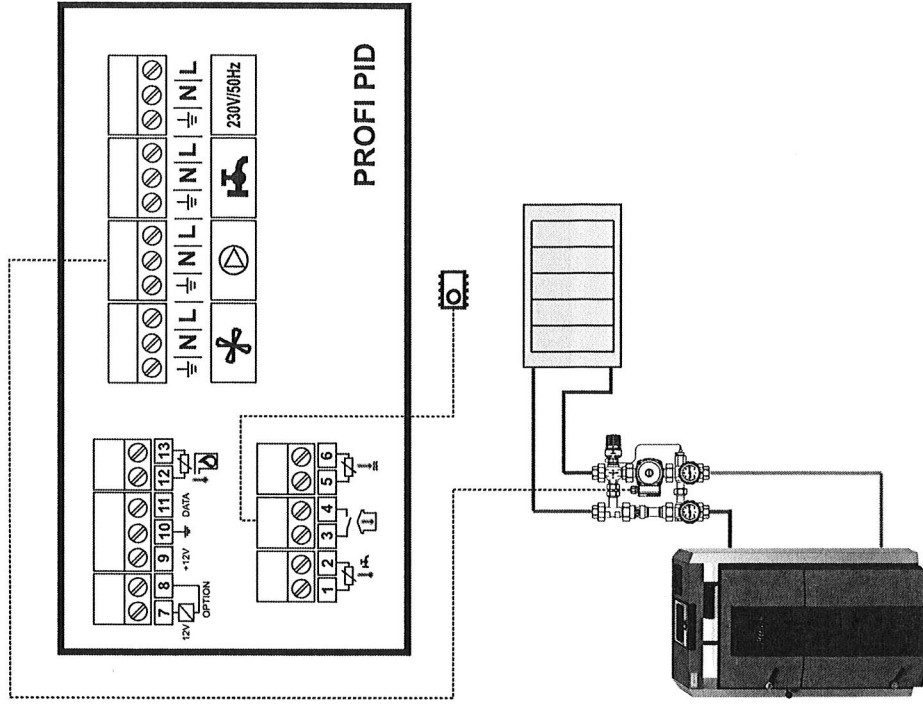
[E 3] If several failures occur in one moment, their total is displayed. In such case it is necessary to check the functionality of all sensors.

## 3. Connection of the regulator by hydraulic schemes

The regulator can control several types of hydraulic schemes. Parameters in the service menu must be correctly set adequately to the type of the hydraulic scheme.

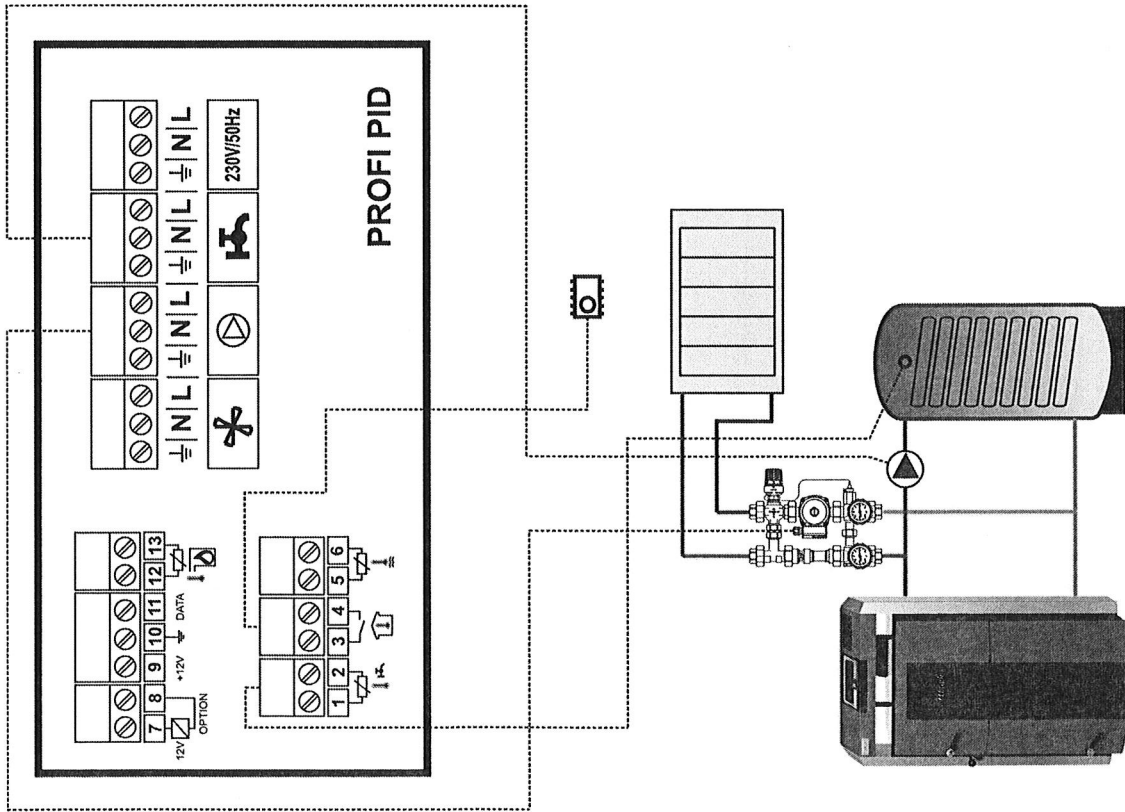
**Note:** Correct connection of pumps and sensors is given on schemes. Connection of the fan and connection of the regulator to the electricity mains is not drawn.

### 3.1 Wood gasifying boiler + heating circuit



Parameter setting by hydraulic scheme 3.1:  
ur = ur0

### 3.2 Wood gasifying boiler + heating circuit + warming of D.H.W.



**Parameter setting by hydraulic scheme 3.2:**  
 ur = ur1 – for priority warming of D.H.W. tank  
 ur = ur2 - for parallel warming of D.H.W. tank

[Ar 0] **Control of multifunctional additional output** – the controller is equipped with additional multifunctional output related to the below mentioned functions (it is necessary to use the UM-1 module to control these functions):

- [Ar 0] **parameter** – indicates start of the automatic boiler (e.g. gas or pellet boiler). When the controller is started and the boiler generates heat, the automatic boiler is stopped. Operation of the automatic boiler is blocked by the controller in the operating mode. The automatic boiler is started by controller, when the fuel is burned down in the boiler and the FUEL alarm is displayed.
- [Ar 1] **parameter** – indicates that the additional multifunctional output will be used for error messages like boiler sensor failure, overheating or fuel shortage.

[° 240] **Adjusted flue gas temperature** – the controller will struggle to reach and keep this value. The flue gas temperature sensor is turned off, if this parameter is set to „-“.

[° h5] **Hysteresis of flue gas temperature** – defines the difference for which must the flue gas temperature decrease to increase the fan rotations.

[° t 5] **Time constant of stabilization the flue gas temperature** – defines the period of adjusting the fan rotations during stabilization of the flue gas temperature. If the flue gas temperature exceeds the value given by parameter [° 240], the controller starts to decrease the fan rotations gradually, until the flue gas temperature decreases to the adjusted value. If the flue gas temperature decreases to the value of flue gas temperature hysteresis, the controller starts to increase the fan rotations gradually.

[° F10] **Blower speed jump while stabilizing exhaust gas temperature** – defines the change of rotations to achieve the adjusted flue gas temperature.

[° 90] **Flue gas temperature by fuel shortage** – the message „FUEL“ for fuel shortage is displayed after the flue gas temperature decreases under this value.

#### Testing the regulator outputs

It is possible to make a check to test the correct functionality of the regulator and devices connected. The correct function of fan is tested by selecting the [outII] on display and holding the „OK“ button. Test of the circuit pump is done by selecting the [outP]. Select the [outU] to start the additional output and [outR] for multifunctional additional output.

#### Reset of regulator's production settings

There is a possibility to reset the production settings of the regulator by selecting the [Prod] in the service menu and confirming by „OK“ button. Then is the regulator set to the values given in the Table 3.

#### Exit from service menu

Select the [End] on display and press the „OK“ button to exit from service menu.

[ur 1] **Priority D.H.W. tank warming** – by this setting is the pump for D.H.W. tank warming connected to the additional output and the sensor of D.H.W. is connected to the additional inlet. Then, if the temperature in the D.H.W. tank decreases under the value of hysteresis

[uh 5] from the temperature adjusted [u 60], the pump of D.H.W. tank warming is started. After the temperature in the D.H.W. tank reaches the set value [u 60], the pump is stopped. The pump is also stopped, when the temperature in boiler is lower than the temperature in D.H.W. tank. The [ur 1] mode means that the D.H.W. warming has priority, i.e. the pump of the heating circuit is started after the D.H.W. is prepared.

[ur 2] **Parallel charging the D.H.W. tank** – similar principle as by the [ur 1], just the D.H.W. is prepared by the parallel operation of the circuit pump of the heating circuit.

[ur 3] **Unused**

[ur 4] **Charging the accumulation tank** – due to this setting is the additional output used as a pump to heat the accumulation tank and the additional sensor measures its temperature. When the temperature in the boiler exceeds the hysteresis [uh 5] over the current temperature of accumulation tank, the pump for charging is started. The pump is stopped, when the temperature in the boiler is same or lower than the temperature in the accumulation tank, or when the temperature in boiler decreases under the minimum boiler temperature defined by the parameter [L 65].

[u 30] **Operating temperature of the D.H.W. tank or accumulation tank** – temperature to control the additional output [ur ].

[uh 5] **Hysteresis of the D.H.W. tank or accumulation** – this parameter defines hysteresis of the additional output [ur ].

[uP 5] **Boiler temperature increase by D.H.W. preparation** – this parameter is relevant, when the additional output works under the mode of D.H.W. tank charging. It defines, for how many degrees will the adjusted boiler temperature be higher than parameter [u 50] during the D.H.W. tank warming.

[L 65] **Minimum boiler temperature** – defines the minimum boiler temperature that can be set by a knob.

[H 85] **Maximum boiler temperature** – defines the maximum boiler temperature that can be set by a knob.

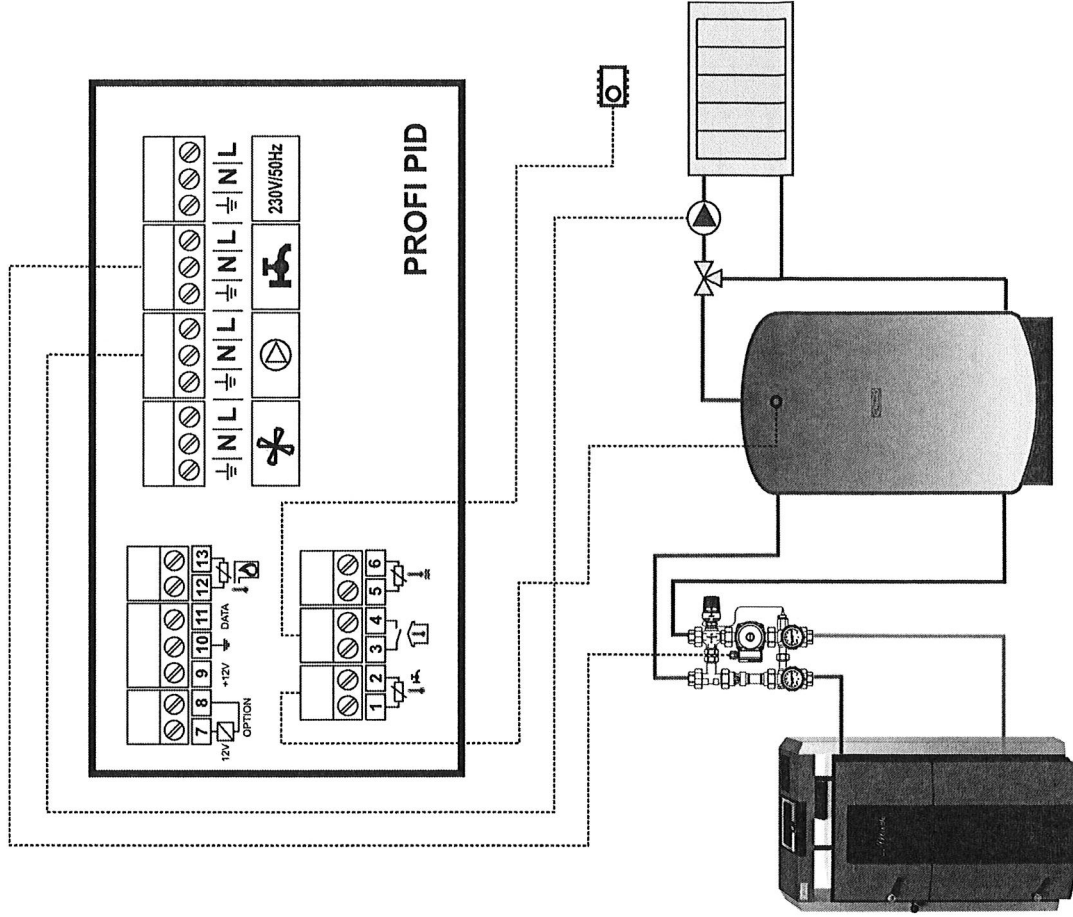
[h 2] **Hysteresis of boiler temperature** – defines the difference between the adjusted and the current boiler temperature for which must the boiler temperature decrease to start the controller again after the adjusted boiler temperature is achieved.

[A 99] **Temperature of boiler overheating** – defines the value of boiler temperature to activate the alarm of the boiler overheating.

[Fd60] **Duration of boiler stop by ignition and fuel shortage** – this parameter defines the maximum time between starting the controller by the START button and achieving the controller's operating mode (reaching the flue gas temperature of [° 90]). If the temperature of [° 90] is not reached during the heating up, the fan is stopped and the alarm FUEL (fuel shortage) is displayed.

[Fb30] **Duration of boiler stop by flue shortage and burn-down** – the fuel amount test is activated in the operating mode, when the flue gas temperature decreases under the parameter [° 90] or (if the flue gas sensor is not connected) when the boiler temperature decreases under the adjusted parameter [L 45]. If the temperature does not exceed the necessary limit during this period, the controller displays FUEL alarm.

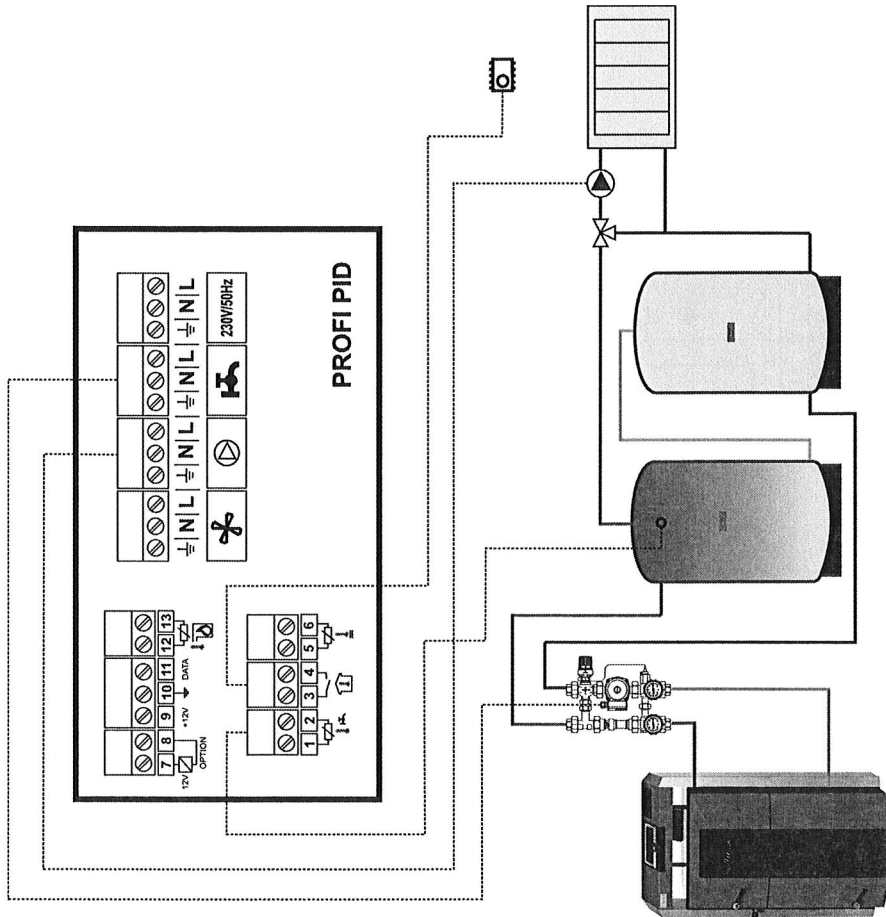
### 3.3 Wood gasifying boiler + heating circuit + warming of accumulation tank



Parameter setting by hydraulic scheme 3.3:  
ur = ur4



### 3.4 Wood gasifying boiler + heating circuit + warming of accumulation tanks connected in serie



Parameter setting by hydraulic scheme 3.4:  
ur = ur4

### Description of parameters

[I1100] Maximum fan output – the highest fan output possible

[n 40] Minimum fan output - the lowest fan output possible

[I1h 5] Ratio of changing the fan rotations – this parameter influences the fan rotations, if the adjusted boiler temperature is going to be achieved in a short time. For example, if the temperature 4 is set, the fan will work at full output [I1100] (if the function of flue gas temperature control is not active), until 4 degrees before the required boiler temperature are achieved. Then, by every increase of the boiler temperature for 1 °C, the fan rotations are gradually decreased until the minimum fan output is reached [n 40].

[I1r 0] Automatic regulation of changing the fan rotations – the fan rotations are increased / decreased by setting this parameter within the range of 0-10 to ensure the required boiler temperature. If this parameter is set to „-“, the rotations are not controlled and the fan works at full output according to the parameter [I1100]. Setting the parameter within the range of 0-10 relates to the time period (in minutes), during which are the fan rotations gradually increased from the parameter of the minimum fan rotations [n 40] up to the parameter [r 100]. This ensures the fluent heat-up of boiler.

[I1n 5] Frequency of exhaust fan blow-through – this frequency defines, how often the fan is started to the full output [I1100] to take the flue gas out from the boiler, if the fan was stopped due to the boiler temperature achieved.

[I1u 6] Duration of exhaust fan blow-through – during this period must the fan exhaust the flue gas following the parameter [I1n 5].

[r 100] Fan output by ignition – this parameter defines the fan output by boiler heat-up. If the parameter "I1r" is set to [I1r 0], then this parameter is not available.

[I1h 5] Hysteresis of boiler stop by ignition – defines, how many degrees before reaching the required boiler temperature will be the heat-up phase finished or (if the flue gas temperature sensor is connected), how many degrees before reaching the required flue gas temperature are relevant to stop the heat-up phase. After deactivation of the heat-up phase there is a casual operating mode.

[P 30] Temperature to start the circuit pump – if there is not D.H.W. tank in the system [ur 0] or it is in the mode [ur 2], then the parameter defines the boiler temperature for starting the circuit pump of the heating system. If the parameter is set to „-“, then too low temperature does not influence the operation of the circuit pump. Anyway, the pump is always started, when the boiler temperature exceeds the parameter [H 85] of the maximum boiler temperature.

If there is accumulation tank in the system (parameter [ur 4]), then this parameter defines the temperature measured in the accumulation tank by which is the circuit pump of the heating system started.

[Ph 2] Hysteresis of circuit pump – defines the temperature difference under which must the boiler temperature or temperature in the accumulation tank decrease in comparison with the temperature defined by the parameter [P 30] to stop the circuit pump.

[Pc -] Interval of unlock function of circuit pump –when controller is in the stand-by mode or the room thermostat is disconnected, the circuit pump is started for 30 seconds after each [Pc -] minutes to prevent the pump blockage caused by its inactivity. The unlock pump function is not active, when the Pc is set to „-“.

[ur 0] Operation of the additional output – this parameter defines the operating mode of the additional output (pump for D.H.W. tank or accumulation tank warming).

[ur 0] Additional output without function – defines that the additional output and pump are not connected and the additional output is not used in this case.

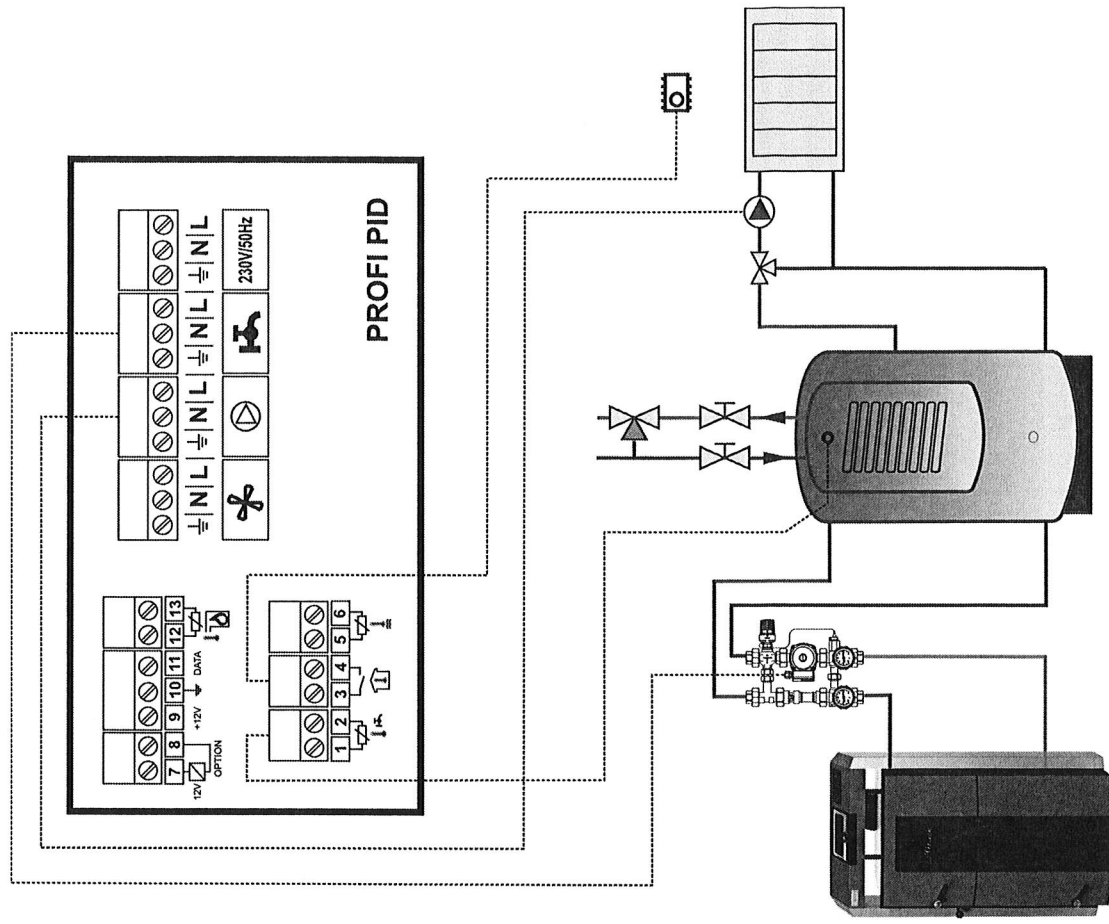
### 6. Setting the service parameters

By holding the OK button you get into the service menu to the parameter settings (the icon (13)). The buttons „+“ and „-“ are used to browse in particular parameters. After selecting the appropriate parameter, it is confirmed by „OK“ button and starts to flicker. To exit from menu, confirm the [End] by „OK“ button. After remaining for more than 1 minute without the user's intervention, the controller switches the display to the basic mode.

Table 3. Service parameters:

Display	Parameter	Min	Max	Step	Prod. set.
Pt100	Maximum fan output	1	100	1 %	100
n 40	Minimum fan output	1	100	1 %	40
Pt15	Ratio of changing the fan rotations	2	20	1	5
Pt10	Automatic regulation of changing the fan rotations	- , 0	10	1	0
Pt1	Delay of changing the fan rotations	0	99	1	1
Pn 5	Frequency of exhaust fan blow-through	- , 5	60	1 s	5
Pn 6	Duration of exhaust fan blow-through	1	99	1 min	6
Pd3	Duration of manual fan operation for 100%	- , 1	99	1 min	3
r100	Fan output by ignition	1	100	1 %	100
rh 5	Hysteresis of boiler stop by ignition	1	45	1 °C	5
P 30	Temperature to start the circuit pump	- , 20	70	1 °C	30
Ph 2	Hysteresis of circuit pump	1	40	1 °C	2
Pc - -	Interval of unlock function of circuit pump	- , 1	99	1 min	2
ur4	Operation of additional output	0	4	1	4
u30	Operating temperature of D.H.W. tank or accumulation tank	30	60	1 °C	30
uh 5	Hysteresis of D.H.W. tank of accumulation tank	1	30	1 °C	5
uP 5	Boiler temperature increase by D.H.W. warming	1	20	1 °C	5
L65	Minimum boiler temperature	30	65	1 °C	65
H 85	Maximum boiler temperature	80	95	1 °C	85
h 2	Boiler temperature hysteresis	1	10	1 °C	2
A 99	Temperature of boiler overheating	90	99	1 °C	99
Fd60	Duration of boiler stop by ignition and fuel shortage	- , 1	99-4 h	1 min	60
Fb30	Duration of boiler stop by fuel shortage and burn-down	- , 1	99-4 h	1 min	30
Ar 0	Control of multifunctional additional output	0	1	1	0
° 240	Adjusted flue gas temperature	-0,5	250	1 °C	240
° h5	Flue gas temperature hysteresis	1	99	1 °C	5
° t 5	Time constant of stabilization the flue gas temperature	1	99	1 min	5
° F10	Blower speed jump while stabilizing flue gas temperature	1	20	1 °C	10
° 90	Flue gas temperature by fuel shortage	30	150	1 °C	90
c 300	Maximum flue gas temperature	250	400	1 °C	300
Prod	Reset of production settings				
outP	Test of fan relay	outP	out1		
outP	Test of circuit pump relay	outP	out2		
outu	Test of relay of optional pump	outu	out3		
outr	Test of additional output	outr	out4		
End	Exit to main menu				

### 3.5 Wood gasifying boiler + heating circuit + warming of combined accumulation tank



Parameter setting by hydraulic scheme 3.5:  
ur = ur4

#### 4. Regulator control and operating modes

Turning on the controller is signalized by a brief switching of all the light indicators on the display to enable to check their status. If the regulator gets suddenly disconnected from electricity mains (e.g. by power failure), it is switched to the last mode used, when the failure occurred. All the settings made are saved even after the power failure.

The basic setting of the controller is the adjustment of the boiler temperature by the knob. Other functions are controlled adequately to the service parameters set in the service menu.

The boiler is turned on by pressing the START (17) button that starts the fan. The STOP (16) button switches the boiler off by turning the fan off.

**The sign displayed behind the numeric temperature indication (7) is related to the current mode of the PID PROFI regulator:**

- [50°-] - indicates the stand-by mode
- [50°C] - indicates the winter operating mode
- [50°C] - indicates winter operating mode when the boiler temperature is achieved
- [50°U] - indicates summer operating mode intended only for D.H.W. preparation
- [50°u] - indicates summer operating mode when the boiler temperature is achieved
- [70°d] - indicates mode of elimination the legionella bacteria, when the temperature of D.H.W. is increased to 75 °C
- [50°P] - indicates that regulator is blocked by pellet burner of the COMBI PELLETT boiler

The PROFI PID regulator has an advantage of regulating the flue gas temperature to the required value. The controller struggles to achieve the adjusted flue gas temperature and after it is achieved, the required boiler temperature is to be reached. Thereby is the fuel used in the best way and the high efficiency is achieved.

#### 5. Setting the user parameters

The menu for displaying and setting the user parameters is accessible after short pressing of the OK button. The „+“ and „-“ buttons are used to browse in settings and parameters. The appropriate parameter selected becomes adjustable by the „OK“ button and starts to flicker. Then it can be changed by the „+“ and „-“ button and confirmed by „OK“. Some of the parameters are only informative and they cannot be changed. To exit from menu, confirm the [End] by „OK“ button. After remaining for more than 1 minute without the user's intervention, the controller switches the display to the basic mode.

Table 2. User parameters:

Indication	Parameter	Min	Max	Step	Prod. setting
C 45	Adjusted boiler temperature	L65	H90	1°C	-
co C	Operating mode of the circuit pump ('C' – WINTER, 's' – SUMMER)	C	-		C
cu u	Operation of the D.H.W. pump ('u' – casual mode, 'd' – elimination of legionella bacteria)	u	d		u
u50°	Current temperature measured in the accumulation tank or D.H.W. tank				
150°	Current flue gas temperature				
End	Exit from user parameters				

**[C 45] – Adjusted boiler temperature** - is the value of boiler water temperature the regulator is going to reach while in the WORK mode. It is set by turning the thermostat knob manually (8) and shown briefly on the display (6).

**[co C] – WINTER/SUMMER mode** – the winter mode is indicated by the 'C' letter. Then is the circuit pump controlled by the room thermostat and distributes the heat into the heating system. The summer mode is indicated by the „s“ sign. Then is the circuit pump out of order and the heat generated by boiler is only used to heat the D.H.W. tank. If there is not D.H.W. tank in the system (additional sensor is not connected), it is not possible to select the SUMMER / WINTER mode.

**[cu u] – Mode of D.H.W. tank warming** – the regulator enables the casual D.H.W. tank warming „u“ or the mode to eliminate the legionella bacteria „d“. After the „d“ mode is selected, the temperature of 75°C is achieved in the D.H.W. tank. When this temperature is achieved, the controller switches into the mode of the casual D.H.W. tank warming „u“. The option of elimination the legionella bacteria is not available, if the additional outlet and sensor are not set for the D.H.W. warming.  
**CAUTION!** Not to get hurt by the hot water, it is recommended to set this mode, when the D.H.W. is not being used (e.g. during the night).

**[u50°] Temperature of additional sensor**- this is the value of current temperature of the D.H.W. tank or of the accumulation tank of the heating system. This temperature is not displayed in the user menu, if the additional output is not used.

**[150°] Flue gas temperature** – this value represents the current temperature of flue gas, if the parameter for flue gas temperature is set in the service parameters.