

eCoal.pl

V2.1

Adaptive Controller

licensed by the Institute for Chemical Processing of Coal

User Manual

Kutno, 28/03/2013

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Visit our websites

<http://eCoal.pl>

<http://eSterownik.pl>

The websites include:

- Answers to the frequently asked questions – **FAQ**
- Latest version of **eCoal.pl** controller software
- Latest version of **eCoal.pl** controller website
- eSterownik.pl** website developed for **eCoal.pl** users provides **Remote Access** to the controller via Internet, if no public IP is available. A proxy server allows communication, if no public IP address is available.
- User **Forum**
- Software test builds are available on the **Forum**

eCoal.pl software - Version history

Version 0.3.1.6:

- Added: new 30 kW power for **Spalanie Grupowe** (Group combustion)
- Changed: error causing feeder operation time reset following controller reset

Version 0.3.1.4:

- Added: new combustion algorithm - **Spalanie Grupowe** (Group Combustion)
- Added: manual combustion process control - **two-state operation**
- Added: **manual hopper type boiler operation** (emergency grate combustion)
- Added: automatic feeder and blower OFF in manual mode
- Added: blower and feeder ON in manual mode with the following alarm: **Uszkodzony czujnik temperatury spalin** (Flue gas temperature sensor failure)
- Added: floor heating pump switches to cyclic operation at set temperature
- Added: floor heating pump OFF at CH temperature 4 °C below **Temp.MIN.CO** (min. CH temperature)
- Added: floor heating pump OFF in **LATO** (Summer) mode
- Added: new alarm - **Wysoka temp. podajnika** (High feeder temperature) - activated 5 °C below **Max temp.podajnika** (Max. feeder temperature)
- Added: emergency CH pump OFF at **temp. MAX** (max. temperature) set in **Ust.zaawansowane** (Advanced settings)
- Changed: simplified DHW priority - CH/floor heating pump always OFF in DHW priority mode
- Changed: removed prolonged operation time after pre-set temperature reduction
- Changed: reduced idle time in sustain mode to 5 minutes (for pellet only)
- Changed: mixing pump may activate, if CH temperature is higher than return temperature by 1 °C
- Changed: CH pump will activate 2 °C below minimum temperature
- Changed: DHW pump will activate 2 °C below minimum temperature
- Changed: floor heating pump will activate 2 °C below minimum temperature
- Amended: sustain cycle activated after 5 minutes following controller reset
- Added: website prompts
- Added: graph display of a single readout when clicking temperature value on the diagram
- Added: graph settings stored in browser cookies
- Added: feeder idle time statistics for group combustion - Histogram on the website
- Added: parameter preview on the graph
- Added: local web server file buffering
- Added: automatic fuel consumption calculation based on feeder operation time
- Added: logging fuel quantity after feeder operation time reset (LCD panel and website)

- Added: winter/summer operation mode logging after new fuel charge The data will be automatically transmitted to eSterownik.pl
- Added: automatic entry on new fuel charge on eSterownik.pl after feeder operation time reset via LCD and website
- Changed: improved SD card data readout speed
- Added: new parameter - **Korekta mocy dmuchawy w grzaniu** (+-6%) (Blower power correction in heating mode)
- Added: new parameter - **Okres rejestracji** (Logging period), defines data logging period: 60 sec, 30 sec, 20 sec, 10 sec.
- Added: new parameter - **Priorytet CWU** (DHW priority) - individual DHW priority function - mode removed from **Tryb pracy CWU** (DHW operation mode)
- Added: new parameter - **Temp. zał. pompy mieszającej** (Mixing pump activation temperature)
- Added: new parameter - **Temp. zał. pompy cyrkulacyjnej** (Circulation pump activation temperature)
- Added: new parameters - **Czas pracy/postoju dla pompy podłogowej** (Floor heating pump operation/idle time)
- Added: new parameter - **Algorytm wygaszenia kotła** (Boiler put out algorithm) (*Nieaktywny, tylko grzanie, tylko podt., aktywny*) (Inactive, heating only, sustain only, active)
- Added: new parameter - **Podbicie temp.CO przy aktywnym priorytecie CWU** (CH temperature increase in DHW priority mode)
- Added: new parameter - **Czas wyrzutu paliwa z podajnika** (Fuel removal time from the feeder), active **Zapłon paliwa** (Fuel ignition) alarm
- Changed: 5 °C temperature setting step removed for **reg.pogodowego** (Weather compensation programmer)
- Changed: **ilość powtórzeń w podtrzymaniu** (repeats in sustain mode) increased to 5
- Changed: **pracy/postoju pompy CO** (CH pump operation/idle time) increased from 60 min to 99 min with **reg.pokojowy** (room thermostat) active
- Changed: **Max.temp podajnika** (Max. feeder temperature) parameter range (40...110 °C)
- Added: temperature sensor readout averaging
- Added: status field on LCD for floor heating temperature sensor - **T.PODLG**
- Added: 'P' marking on the display indicating **priorytet CWU** (DHW priority) mode active
- Added: 'T' - **Termostat** (Thermostat) active, and 'K' - **Reg.pokojowy** (Room thermostat) active
- Changed: PIN prompt for **Parametry zaawansowane** (Advanced parameters) menu
- Added: new parameter - **Praca automatyczna pompy cyrkulacyjnej w trybie ręcznym**(Circulation pump automatic operation in manual mode)

Version 0.2.8.1:

- Changed: error causing 5 sec feeder operation in heating mode after each controller reset

Version 0.2.8.0:

- Added: information display on the web site, that the controller is in **LATO** (Summer) mode (important information in Auto-Lato (Automatic summer) mode)
- Added: **Typ kotła** (Boiler type) parameter. Change in parameter does not restore factory settings.
- Added: set temperature logging for **reg.pokojowy** (Room thermostat) - graphs
- Added: set temperature logging for **reg.podłógówki** (Floor heating thermostat) - graphs
- Added: additional parameters for **Alarm zewnętrzny** (External alarm): **Opóźnienie** (Delay), **Inwersja wejścia** (Output inversion), **Zatrzymanie sterownika** (Controller OFF)
- Added: parameter - **Funkcja pompy mieszającej** (Mixing pump function): **Mieszająca** (Mixing), **Cyrkulacyjna** (Circulation), **Podłogowa** (Floor heating)
- Added: **Programator Pompy Podłogowej** (Floor heating pump controller)
- Added: parameter - **Funkcja wyjścia pompy CWU** (DHW pump output function): **CWU**, **CWU + pompa mieszająca** (DHW, DHW + mixing pump). This function enables use of DHW pump as a mixing pump.
- Added: DHW pump operation mode on the website depending on if DHW pump is activated based on DHW algorithm (green) or mixing pump algorithm (yellow)
- Added: new DHW operation modes: **AutoLato-temp** (Automatic summer - temperature), **AutoLato-programator** (Automatic summer - programmer)
- Added: **Auto-Lato** (Automatic summer) mode programmer
- Added: factory settings restored by pressing **ESC** during power on.
- Added new parameter - **Histeresa dla reg.pokojowego** (Hysteresis for room thermostat) (Range: 0.1 - 2.0 °C)
- Added new parameter - **Histeresa trybu Auto-Lato** (Automatic summer mode hysteresis) (Range: 0.5 - 5.0 °C)
- Added new parameter - **Czas pracy podajnika w grzaniu** (Feeder operation time in heating mode) (Range: 3 - 20 sec)
- Added: sustain cycle is activated after each controller fadeout/reset
- Added: parameter - **Niezależna praca pompy mieszającej** (Independent mixing pump operation). If parameter is active, mixing pump operates independently from the CH pump (all modes)
- Added: boiler put out in sustain mode - **Wygaszenie kotła** (Boiler put out) alarm is generated when the flue gas temperature will not rise by 5 °C in the sustain mode
- Added: new boiler type - **PELLET** (Pellet)
- Limited: number of feeding cycles in sustain mode to 5 steps
- Removed: limited to 45 days at planning next fuel charge
- Changed: **Histeresa CWU** (DHW hysteresis) parameter resolution to 0.1 °C
- Changed: CH pump activation in summer mode above 80 °C, pump deactivation 5 °C below
- Changed: DHW pump activation in summer mode above 70 °C, pump deactivation 5 °C below
- Mixing pump operates depending on CH pump operation. Pump deactivation temperature 3 °C below minimum temperature (not less than 39 °C), activation temperature 0.5 °C above minimum temperature

- **Czas postoju pompy cyrkulacyjnej** (Circulation pump idle time) reduced to 0 min - circulation pump may operate in continuous mode.
- Parameter update for Ogniwo **EKO+ 16kW** boiler
- **Analiza wygaszenia kotła w grzaniu** (Boiler put out analysis in heating mode) - **Wygaszenie kotła** (Boiler put out) alarm is generated in heating mode, if flue gas temperature falls below 50 °C and is maintained for at least 30 minutes
- Reduced: blower power in sustain mode to 30%
- Solved: problem with delayed switching to heating (room thermostat)
- Improved: SD card compatibility

Version 0.0.2.4:

- Added: Feeder operation time counter. Feeder operation time is displayed on the operator panel in position 4 (press ↓ arrow down 3x) - "**CP.POD:**" field. After feeding fuel to the hopper, hold → (*right arrow*) or ← (*left arrow*) to reset the time. Time may also be reset via our website: **Ustawienia użytkownika** (User settings), **Wyzeruj** (Reset) button
- Added: Indication of low fuel level in the hopper based on determined feeder operation time. Feeder operation time may be set via our website: **Parametry użytkownika** (User parameters), **Czas do opróżnienia zasobnika [min]** (Time to empty hopper [min]) field.
- Added: Logging new fuel batch data in alarms and events.
- Added: Anticipated date of the next coal charge. Algorithm calculates date based on defined hopper emptying time. The date is displayed after the next charge following feeder operation time reset.
- Added: Factory parameters for OGNIWO EKO PLUS 16kW boiler
- Improved: communication with **Zdalny Dostęp** (Remote access) service

Version 0.0.2.0:

- Added: **Zdalny Dostęp** (Remote access) service – <http://eSterownik.pl>
- Added: Languages: Polish, English, German, Czech
- Added: New advanced parameters: **Tryb pracy pompy CO** (CH pump operation mode), **Czas pracy pompy CO** (CH pump operation time), **Czas postoju pompy CO dla regulatora pokojowego i termostatu** (CH pump idle time for room thermostat and thermostat)
- Added: **Alarm zewnętrzny** (External alarm) via binary controller input: **KONT**
- Added: Two new advanced settings parameters: **Auto** (Automatic) mode
- **Lato** (Summer) (ON/OFF) and **Temp.zew** (External temperature) for **Auto** mode
- **Lato** (Summer) – automatic switching to **LATO** (Summer) mode after exceeding set external temperature.
- Added: New user parameter: **Regulator temp.wewnętrznej** (External temperature thermostat) to select temperature adjustment in the room: **Wyłączony** (OFF), **Prog.Pokojowy** (Room thermostat), **Termostat** (Thermostat). Separation of room and boiler thermostat enable operation of two thermostats.
- Changed: **Zadawanie temperatury** (Temperature setting) parameter for **Regulator temperatury kotła** (Boiler thermostat). Options: **Prog.CO** (CH thermostat), **Prog.Pogodowy** (Weather compensation programmer). Separation of room and boiler thermostat enable operation of two thermostats.

- Changed: User parameters – **Przywracanie ustawień fabrycznych** (Restore factory settings). Restore settings for a specific boiler power (15 kW, 25 kW, 35 kW).
- Changed: CH pump operation time in DHW priority mode: 5/30 min

1. Foreword

eCoal.pl is an adaptive controller developed with the research department of the Institute for Chemical Processing of Coal and Elektro-System S. C. - industrial automatics and IT company.

The essence and innovativeness of controller operation consists in ensuring continuous boiler combustion process by simultaneous operation of two regulators - one controlling fuel quantity depending on power and second controlling air quantity for optimum combustion process.

The controller features flue gas temperature measurement, also used as a flue gas analyser to determine optimum air supply for fuel combustion. The combustion parameters are automatically selected without additional service or maintenance required.

1.1. Intended use

eCoal.pl controller is intended for automatic supervision of central heating boiler with an automatic screw feeder and a blower. It may also be used to control domestic hot water (DHW) pump, and in a systems fitted with a mixing pump it maintains minimum return water temperature. The controller can also supervise fuel feeder operation: fuel ignition (back burning). **eCoal.pl** is compatible with the **eSterownik.pl** platform. The web interface allows for intuitive change of operation parameters. It also allows controller software update. The latest software version is available on <http://eCoal.pl> and **eSterownik.pl** forum.

1.2. Algorithm - Group Combustion

Burning solid fuels in a boiler with an automatic burner is a complex process, both in respect of low fuel uniformity, e.g. particle size, and variable physical and chemical parameters, essential for combustion processes.

Coal is an especially problematic fuel, whose properties depend not only on its origin - a coal mine, but also on the specific coal bed. Coal fuel combustion in automatic boilers is a stochastic process.

In commonly used solutions, fuel feeding and combustion are considered as continuous processes. It means that the feeder operates in regular and repeatable operation/idle cycles, and its power changes depending on operation and idle time ratio, which does not affect repeatability.

The disadvantages of continuous fuel feeding and combustion processes, include issues with fuel to air ratio due to a stochastic nature of the combustion process, and the fact that feeding fuel batches in small intervals does not allow complete assessment of the combustion process. Significant increase in fuel feeding interval must be related with significant increase in batch feeding time to reach required power, causing temporary incomplete combustion in form of a smoke.

Based on the combustion process testing in automatic solid fuel boilers, fuel batching, and therefore impulse (discrete) combustion process allows to assess, if the combustion process of a previous batch been completed.

Treating the fuel batching process, and therefore the combustion process, not as a continuous but as an impulse process is revolutionary innovation.

Realization of a new control method consists in group repeating of fuel feeding and short feeder idle time cycles, following a long interval to complete combustion of the previous fuel batch, and the moment of complete combustion is determined based on flue gas temperature trend analysis.

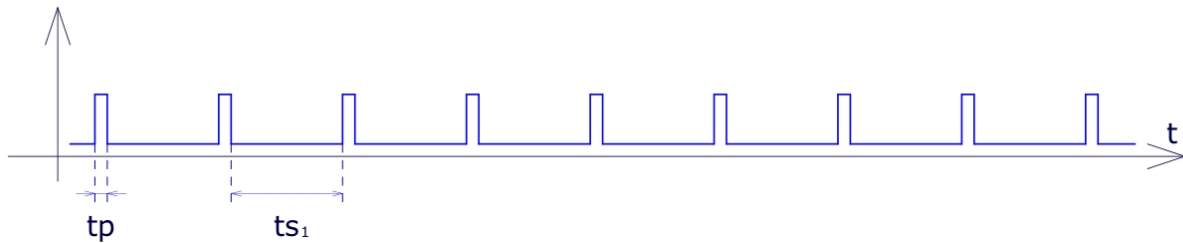


Fig. 1



Fig. 2

tp - czas pracy podajnika
 ts₁, ts₂ - czasy postoju podajnika
 td - czas długiej przerwy w podawaniu

Fig. 1: Comparison of group and standard combustion processes

1.3. Group combustion histogram

Histogram is a graphical representation of the distribution of data. It is shown as adjacent rectangles on the coordinate axis. The rectangle sizes are determined by class intervals (see: distribution series), with height determined by the size.

In this case, feeder idle times with 10 s resolution are grouped on the X-axis. The higher the rectangle, the more often the specific idle time have occurred. Shorter idle times are grouped on the left side of the histogram, and longer idle times are grouped on the right side.

Idle times depend on blower rate - the higher the blower speed, the faster the combustion process (rectangles on the left side of the histogram), the lower the blower speed, the slower the combustion process (rectangles on the right side of the histogram).

Idle time may not be too short - excessive combustion rate (left side of the

histogram) or too long - low combustion rate (right side of the histogram). Distribution of the rectangles on the histogram shows the operation of a group combustion algorithm. If high rectangles are on the right side of the histogram, it means that the algorithm does not detect fuel combustion in set time and indicates low air supply.

The data can be used to set the blower power in the group combustion process, it will not replace observation of a furnace, soot and coal deposits. Histogram is a visualisation of group combustion algorithm only.

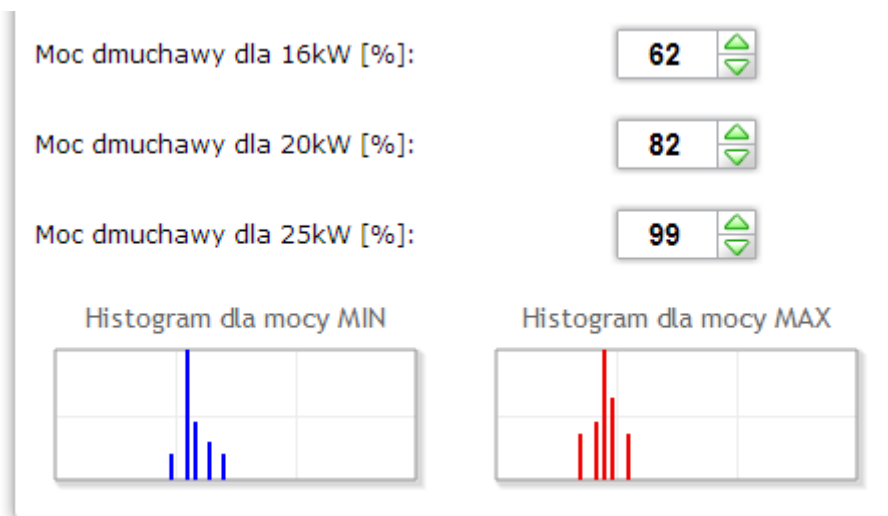


Fig. 2: Histograms on the website

1.4. Specification

Power supply.....	230V~50Hz
Protection rating.....	IP40
Electrical protection class	I
Allowable ambient temperature	5 °C to 45 °C no condensation
Feeder circuit load	up to 0.8 A
Blower circuit load.....	up to 0.8 A
Pump circuit load.....	up to 0.8 A
Fuses.....	4 A

2.Safety

- Read the warranty terms and conditions and User manual before installation. Incorrect installation, operation and maintenance will render the warranty void.
- Assembly and installation works shall be carried out by the service centre or personnel with proper qualifications and authorization, in accordance with current regulations and standards.
- Due to the operation safety, and mains electromagnetic interferences which may affect operation of the controller and other devices, connect the controller to the socket with an earthing pin.
- Do not expose controller to water and excessive humidity resulting in condensation (e.g. rapid ambient temperature changes).
- Do not expose controller to temperature above 45 °C and below 5 °C.
- In case the auxiliary grate is used to fire wood or wastes, remove flue gas sensor from the flue, if the emergency grate combustion mode is not active (**Parametry zaawansowane** (Advanced parameters) – **Typ podajnika: Zasypowy** (Feeder type: hopper)).
- Wiring must be fixed on the entire length and must not contact water jacket or flue gas conduits.
- Disconnect mains plug before connecting/disconnecting devices supplied by the controller.
- During the storm, the controller must be disconnected from 230 V mains.
- The system must be protected with fuses with a correct rating in accordance with current standards and regulations.
- Do not install the controller with damaged housing or wires.
- All repairs must be carried out by an authorized service centre. In other case, the warranty is void.
- Flue gas sensor requires cleaning at least once a month.
- The flue gas must be fitted in the middle of the flue diameter.
- In case the sensor cable length exceeds 5 m, shielded cable pairs are

recommended. Cable shield must be connected to PE terminal on the controller side only.

3.Installation

Assembly and installation works shall be carried out by the service centre or personnel with proper qualifications and authorization, in accordance with current regulations and standards.

3.1.Environmental conditions

Do not expose controller to water and excessive humidity resulting in condensation (e.g. rapid ambient temperature changes).

Do not expose controller to temperatures above 45 °C and below 5 °C.

3.2.Installation of a control panel

An LCD housing is snap fastened. Lead a cable through a gland in a bottom part of the LCD housing. Connect on end of the cable to a screw terminal on the display board and lead the other end through the gland in the controller housing, and connect to a suitable terminal. Connect in accordance with the following colour codes:

- GND – white
- B – yellow
- A – green
- +12V – brown

Recommended cable: LIYY 4x0.25 mm².

3.3. Connecting measuring sensors

Activation of connected devices and controller functions is automatic and depends on connection of temperature sensors to the controller. E.g. connecting DHW temperature sensor activates DHW pump operation, and connecting external temperature sensor allows automatic use of a weather compensation programmer etc. The sensors must be connected to the controller in accordance with the markings on the printed circuit board, by leading the sensor cable via a correct cable gland (description on the housing). KTY-81-210 type and PT-100 type temperature sensors are used.

If the sensor is not connected, it is signalled with dashes by the sensor marking.

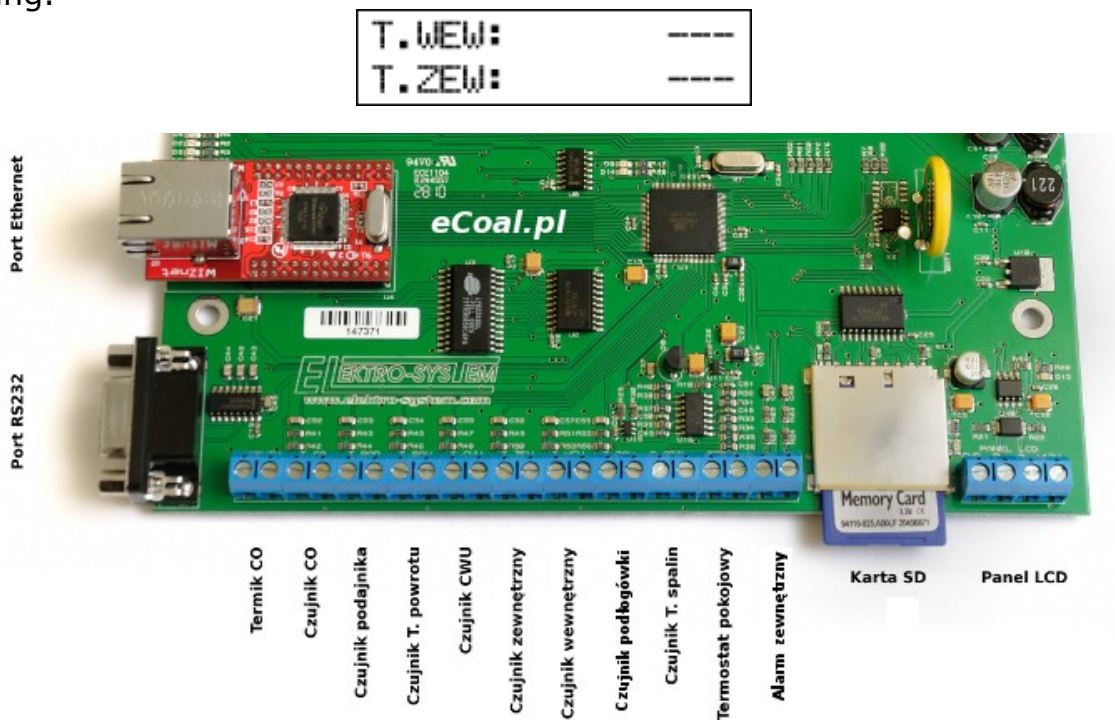


Fig. 3: Terminal strip for sensors

The controller may detect damaged sensors. Disconnect mains plug before connecting/disconnecting sensors to the controller and disconnect mains plug each time.

In case the sensor cable length exceeds 5 m, shielded cable pairs are recommended. Cable shield must be connected to PE terminal on the controller side only.

3.4. Connecting room thermostat

Room thermostat (*external device, e.g. Auraton*) must be connected to the controller board to **TERM** terminals. The thermostat connected to the controller shall be fitted with potential free contact. In case the room thermostat is connected, CH temperature is set by switching the contacts on the boiler: daily comfort (contact closed) or reduced (contact open). The option may be selected in **Ustawieniach użytkownika** (User settings) - **Regulator temperatury wewnętrzny: Termostat** (Internal temperature controller: Thermostat).

Higher boiler temperature is set with thermostat contacts closed. With contacts open, set temperature is lowered, also CH pump may operate in cyclic or continuous mode or can be switched OFF - set in **Parametry zaawansowane** (Advanced parameters) – **Tryb pracy pompy CO**.

3.5. Connecting sensors to external alarm input

The controller enables connection of potential free external sensors (e.g. hopper hatch open sensor, CO sensor, CO2 sensor etc.) to **Alarm zewnętrzny** (External alarm) input (see Fig. 3). In **Ustawienia zaawansowane** (Advanced settings) menu, user can set the controller response to input activation: **czas opóźnienia** (delay time), **inwersja wejścia** (input inversion) and **zatrzymanie sterownika po zadziałaniu alarmu** (controller OFF after alarm activation).

3.6. Connecting control devices

The controller can be connected to the following devices:

- Blower
- Feeder
- CH pump
- DHW pump
- Mixing pump, circulation pump or floor heating pump

Connections shall be made in accordance with markings on the housing.



Fig. 4: Housing wall with power outputs

3.7. PC connection

The PC is connected with cable included. The PC shall be fitted with RS232 connector (DB9 socket). Optional RS232/USB adapter is available.



Fig. 5: RS232 connector



Fig. 6: RS232 cable

3.8.Ethernet connection

Controller shall be connected to the Ethernet with UTP network cable (PATCH CABLE) with RJ45 plug. The controller must be connected to local network switch or router. Set IP address, mask and default gateway in the controller. The options are available in **Internet** menu.

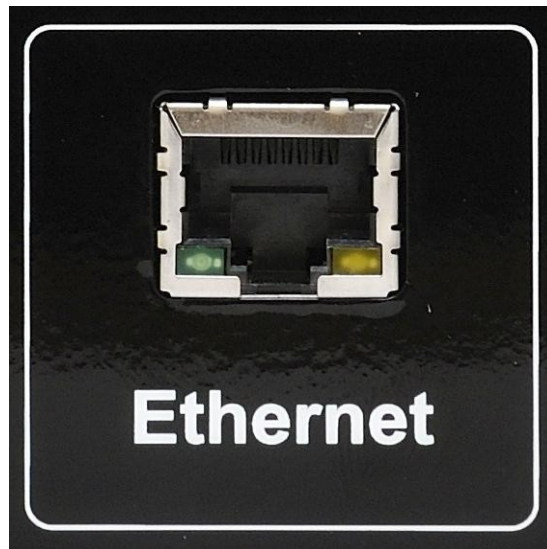


Fig. 7: Ethernet RJ45 connector

4. Controller operation

4.1. Control panel - keyboard

LCD panel features LCD, keys and LED indicators. Green LED indicates operation of the devices supplied by the controller. Red LED indicates alarm. Four arrow keys enable menu navigation and change of value. The following function keys are available: **OK** (Enter) - to select operation level, settings menu, and confirm changes. Press **OK** to select maintenance level or enter settings menu by holding the key for approx. 1 sec. The second function key is (**Esc**). Press to exit the menu, cancel selected or set parameters.



- Feeder operation indication
- Blower operation indication
- CH pump operation indication
- DHW pump operation indication
- Alarm indication

4.2. Control panel - Maintenance level

After connecting power supply to the controller, software version screen is displayed. The main screen includes information on measured and set CH and DHW temperature (if DHW option is active and sensor connected).

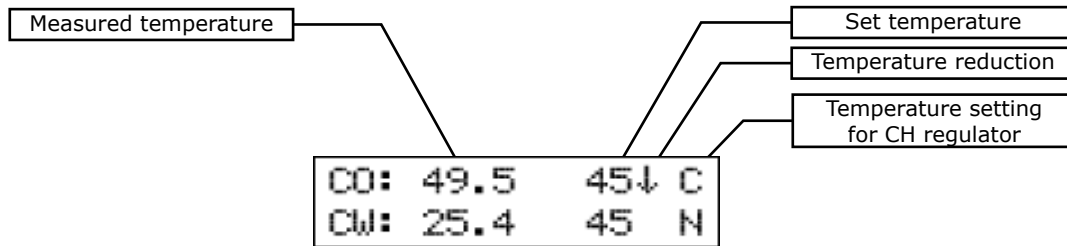
The main screen also shows information on boiler operation mode (top line):

- R – manual operation
- C – automatic operation – temperature set by *CH programmer*
- P – automatic operation – temperature set by *weather compensation programmer*
- K – *room regulator* active
- T – *room thermostat* active

CO: 28.6	55	R
CW: 26.0	55	R

At DHW temperature (bottom line) in manual mode, R indication is showed (manual mode). In the automatic mode, the following marks indicate DHW temperature adjustment mode:

- N – winter mode – normal DHW pump operation
- P – DHW priority mode – DHW pump priority
- L – summer mode – domestic hot water pump operation only.
- Z – automatic summer temperature mode - switching winter/summer mode depending on external temperature
- G – automatic summer programmer mode - switching winter/summer mode depending on programmer setting



The main screen shows data for boiler operation at reduced temperature. It is indicated by a down arrow next to CH and DHW set temperature. No arrow indicates normal temperature.

Disconnecting DHW temperature sensor from the controller, deactivates DHW pump. A row of dashes next to DHW description indicates no active DHW option. The sensors must be disconnected with the controller OFF.

At the maintenance level, the temperature measured by the sensor can be verified. Press up and down arrows to scroll.

Item	Symbol	Description
1	CO (CH)	CH temperature – measured and set
2	CW (DHW)	DHW temperature – measured and set
3	T.WEW (Internal temperature)	Internal temperature
4	T.ZEW (External temperature)	External temperature
5	POWROT (Return)	Return temperature
6	SPALINY (Flue gas)	Flue gas temperature
7	T.POD (Feeder temperature)	Feeder temperature
8	CP.POD (Feeder operation time)	Feeder operation time
9	T.PODLG (Floor heating temperature)	Floor heating temperature

4.3.Controller operation modes

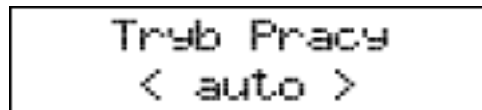
The controller has two operation modes: automatic and manual. Manual mode is used for lighting off the boiler.

a)Manual mode

Manual mode can be selected via control panel at the maintenance level or via controller software (PC/website). To switch the mode on via control panel, select **Tryb Pracy** (Operation mode) with left and right arrow and select **Tryb Pracy <ręczny>** (Operation mode <manual>). After selecting manual mode, all devices supplied by the controller may be switched ON/OFF. Hold **ESC** to switch to manual mode.

b)Automatic mode

Automatic mode can be selected via control panel at the maintenance level or via a controller software (PC/website). To switch the mode on via control panel, select **Tryb Pracy** (Operation mode) with left and right arrow and set **Tryb Pracy <auto>** (Operation mode <auto>).

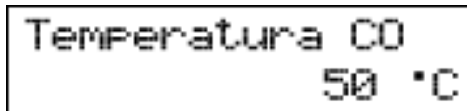


Tryb Pracy
< auto >

In the automatic mode, some parameters for switching the devices ON/OFF are not available. Hold **ESC** to switch to automatic mode.

4.4. Central heating temperature setting

In the main screen, press left arrow to enter **Temperatura zadana CO** (CH set temperature) screen.



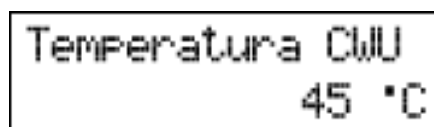
Temperatura CO
50 °C

Press up arrow to increase set temperature, and press down arrow do decrease set temperature. Press **OK** to confirm and select main screen. Press **ESC** to cancel. Temperature setting range from **Parametry zaawansowane** (Advanced parameters): **Minimalna temperatura CO** (Minimum CH temperature) to **Parametry zaawansowane** (Advanced parameters): **Maksymalna temperatura CO** (Maximum CH temperature).

If down arrow (↓) is displayed in the status window, it indicates that the set temperature is reduced by the value set in **Parametry użytkownika – Temperatura CO Obniżona** (User parameters - CH temperature reduced), and set CH temperature may differ from set temperature. Temperature must not be reduced below **Minimalna temperatura CO** (Minimum CH temperature).

4.5. Domestic hot water temperature setting

In the main screen press right arrow to enter **Temperatura zadana CWU** (DHW set temperature) screen.



Temperatura CWU
45 °C

Press up arrow to increase set temperature, and press down arrow do decrease set temperature. Press **OK** to confirm and select main screen. Press **ESC** to cancel. Setting range 35°C to 60°C.

If down arrow (↓) is displayed in the status window, it indicates that the set temperature is reduced by the value set in **Parametry użytkownika – Temperatura CWU Obniżona** (User parameters - DHW temperature reduced), and set DHW temperature may differ from set temperature.

4.6.Function - fuel charge

The controller generates event log entries, and new fuel charge entries. It may also indicate low fuel level in the hopper based on the feeder operation time required to empty the fuel hopper. Feeder operation time to hopper emptying is available via website. Current feeder operation time is displayed in the status screen (**CP.POD** item). Press (← → - left or right arrow) to display prompt to enter the fuel quantity charged to the hopper (↓↑ - up and down arrow).

This function also enables controller registration on **eSterownik.pl** website to generate automatic statistics on combusted fuel, related costs and approximate boiler power.

5.Controller programming

Controller settings can be changed via control panel. To access the settings, press and hold **OK** for 1 second. Select the item and press **OK**.

5.1.Combustion parameters

Parametry spalania (Combustion parameters) menu items are changed depending on combustion algorithm selected in the advanced parameter menu:

Typ podajnika (Feeder type):

- Retorta-ręczny** (Retort - manual) – retort feeder, manual combustion process.
- Retorta-grupowe** (Retort - group) – retort feeder, semi-automatic combustion process.
- Retorta-eCoal** (Retort - eCoal) – retort feeder, fully automatic combustion process.
- Zasypowy** (Hopper) – combustion at an emergency grate with feeder OFF.

Select an item and press **OK**.

Select item with up or down arrow. Press **OK** to edit item. Press up and down arrow (↓↑ -) to change value. Press **OK** to confirm. Press **ESC** to cancel and exit.

a) Parametry spalania (Combustion parameters) – typ Tłokowy (Ram type) - ręczny (Manual)

Manual combustion process. All combustion parameters are set by the user.

Item	Parameter	Description
1	Regulator temperatury spalin (Flue gas temperature regulator)	The function limits flue gas loss by reducing blower power at exceeded flue gas temperature. <i>Range [TAK (Yes)/NIE (No)]</i>
2	Maksymalna temperatura spalin (Maximum flue gas temperature)	Maximum flue gas temperature maintained by the flue gas temperature regulator. Exceeding temperature will result in blower output reduction. <i>Range [90°C to 500°C]</i>
3	Minimalna moc dmuchawy (Minimum blower power)	Minimum power at which the blower rate is reduced at flue gas temperature regulator active. <i>Range [25% to 100%]</i>
4	Histereza CO (CH hysteresis)	Central heating temperature hysteresis. Above CH set temperature - switching to sustain mode; below set temperature minus <i>Histereza CO</i> (CH hysteresis) – switching to heating mode. <i>Range [0.2°C to 5.0°C]</i>
5	Czas pracy w grzaniu (Operation time in heating mode)	Fuel feeding time in heating mode. <i>Range [3s to 20s]</i>
6	Czas postoju w grzaniu (Idle time in heating mode)	Feeder idle time in heating mode - interval between subsequent fuel batches. <i>Range [1s to 600s]</i>
7	Moc dmuchawy w grzaniu (Blower power in heating mode)	Blower power set in heating mode. <i>Range [25% to 100%]</i>
8	Czas postoju w podtrzymaniu (Idle time in sustain mode)	Feeder idle time in sustain mode. <i>Range [5min to 120min]</i>
9	Czas pracy w podtrzymaniu (Operation time in sustain mode)	Fuel feeding time in sustain mode. <i>Range [3s to 60s]</i>
10	Krótką przerwę w podtrzymaniu (Short pause in sustain mode)	Short feeder pause (idle time) in sustain mode. Fuel feeding cycle in sustain mode is carried out in the following stages: [OPERATION-SHORT PAUSE] - [OPERATION-SHORT PAUSE]... Cyclic operation allows complete fuel combustion in sustain mode. The number of cycles may be defined in the next parameter. <i>Range [5s to 120s]</i>
11	Ilość powtórzeń postoju podajnika (Number of feeder idle time cycles)	Number of cycles: [OPERATION-SHORT PAUSE] in sustain mode. <i>Range [1 to 5]</i>
12	Moc dmuchawy w podtrzymaniu (Blower power in sustain mode)	Blower power set in sustain mode. <i>Range [25% to 100%]</i>
13	Moc dmuchawy w trybie ręcznym (Blower power in manual mode)	Blower power set in manual mode. <i>Range [25% to 100%]</i>

b) Parametry spalania (Combustion parameters) – typ Tłokowy (Ram type) - grupowy (Group)

Semi-automatic combustion process. New combustion process control method. User may select 6 different power settings for boiler operation. User sets minimum and maximum power only. Blower power must be defined for selected power settings. Histogram facilitates blower power settings (available on the controller website). Switching between minimum and maximum power is automatic. Minimum power is activated below CH hysteresis, whereas maximum power is activated if CH temperature falls below double hysteresis. Sustain mode is activated +1 °C above set temperature.

Item	Parameter	Description
1	Minimalna moc kotła (Minimum boiler power)	Minimum boiler power selected from the range of power settings
2	Maksymalna moc kotła (Maximum boiler power)	Maximum boiler power selected from the range of power settings
3	Moc dmuchawy dla 8kW (Blower power for 8 kW)	Blower power for selected 8 kW power. Range [25% to 100%]
4	Moc dmuchawy dla 12kW (Blower power for 12 kW)	Blower power for selected 12 kW power. Range [25% to 100%]
5	Moc dmuchawy dla 16kW (Blower power for 16 kW)	Blower power for selected 16 kW power. Range [25% to 100%]
6	Moc dmuchawy dla 20kW (Blower power for 20 kW)	Blower power for selected 20 kW power. Range [25% to 100%]
7	Moc dmuchawy dla 25kW (Blower power for 25 kW)	Blower power for selected 25 kW power. Range [25% to 100%]
8	Moc dmuchawy dla 30kW (Blower power for 30 kW)	Blower power for selected 30 kW power. Range [25% to 100%]
9	Histereza CO (CH hysteresis)	Central heating temperature hysteresis. Temperature above CH set temperature - switching to sustain mode; below set temperature minus Histereza CO (CH hysteresis) - switching to heating mode. Range [0.2°C to 5.0°C]
10	Czas postoju w podtrzymaniu (Idle time in sustain mode)	Feeder idle time in sustain mode. Range [5min to 120min]
11	Czas pracy w podtrzymaniu (Operation time in sustain mode)	Fuel feeding time in sustain mode. Range [3s to 60s]
12	Krótką przerwę w podtrzymaniu (Short pause in sustain mode)	Short feeder pause (idle time) in sustain mode. Fuel feeding cycle in sustain mode is carried out in the following stages: [OPERATION-SHORT PAUSE] - [OPERATION-SHORT PAUSE]... Cyclic operation allows complete fuel combustion in

Item	Parameter	Description
		sustain mode. The number of cycles may be defined in the next parameter. <i>Range [5s to 120s]</i>
13	Ilość powtórzeń postoju podajnika (Number of feeder idle time cycles)	Number of cycles: [OPERATION-SHORT PAUSE] in sustain mode. <i>Range [1 to 5]</i>
14	Moc dmuchawy w podtrzymaniu (Blower power in sustain mode)	Blower power set in sustain mode. <i>Range [25% to 100%]</i>
15	Moc dmuchawy w trybie ręcznym (Blower power in manual mode)	Blower power set in manual mode. <i>Range [25% to 100%]</i>

c) Parametry spalania (Combustion parameters) – typ Tłokowy (Ram type)- eCoal (eCoal)

Fully automatic combustion process. The controller selects optimum air quantity for fuel combustion based on fuel gas temperature measurement analysis. The combustion parameters are automatically selected without additional service or maintenance required.

Item	Parameter	Description
1	Typ kotła (Boiler type)	Setting output parameters for combustion algorithm for selected boiler type. The parameter does not change algorithm operation.
2	Czas pracy w grzaniu (Operation time in heating mode)	Fuel feeding time in heating mode. Idle time calculated automatically based on algorithm. <i>Range [3s to 20s]</i>
3	Korekta dmuchawy w grzaniu (Blower correction in heating mode)	Correction neutralizes excessive flue gas draught. <i>Range [-6% to +6%]</i>
4	Czas postoju w podtrzymaniu (Idle time in sustain mode)	Feeder idle time in sustain mode. <i>Range [5min to 120min]</i>
5	Czas pracy w podtrzymaniu (Operation time in sustain mode)	Fuel feeding time in sustain mode. <i>Range [3s to 60s]</i>
6	Krótką przerwę w podtrzymaniu (Short pause in sustain mode)	Short feeder pause (idle time) in sustain mode. Fuel feeding cycle in sustain mode is carried out in the following stages: [OPERATION-SHORT PAUSE] - [OPERATION-SHORT PAUSE]... Cyclic operation allows complete fuel combustion in sustain mode. The number of cycles may be defined in the next parameter. <i>Range [5s to 120s]</i>
7	Ilość powtórzeń postoju podajnika (Number of feeder idle time cycles)	Number of cycles: [OPERATION-SHORT PAUSE] in sustain mode. <i>Range [1 to 5]</i>

Item	Parameter	Description
8	Moc dmuchawy w podtrzymaniu (Blower power in sustain mode)	Blower power set in sustain mode. Range [25% to 100%]
9	Moc dmuchawy w trybie ręcznym (Blower power in manual mode)	Blower power set in manual mode. Range [25% to 100%]

d) Parametry spalania (Combustion parameters) – typ Zasypowy (Hopper type)

Combustion at an emergency grate with feeder stopped or for hopper type feeders. The algorithm reduces blower power at flue gas temperature over 350 °C, and stops the blower at flue gas temperature over 400 °C.

Item	Parameter	Description
1	Czas przedmuchu (Blow in time)	For set temperature over 8 °C, the controller automatically removes flue gases in the chamber (it is important for hopper type boilers). Blow in time determines time to switch the blower ON. Range [0s to 90s]
2	Czas pomiędzy przedmuchami (Blow in interval)	Defines interval between subsequent blow ins. Range [1min to 15min]
3	Strefa automatycznej regulacji (Automatic adjustment zone)	Parameter relates to the range of temperature, directly before reaching set temperature, where the controller automatically reduces the blower power. Within this range, with the increase in CH temperature, the blower reduces its speed to reach set temperature. The blower speed is increased with the temperature decrease. Depending on the requirements, the range is adjusted by the user from 10 °C to 0 °C. Range [0°C to 10°C]
4	Histeresa CO (CH hysteresis)	Central heating temperature hysteresis. Temperature above CH set temperature - switching to sustain mode; below set temperature minus Histeresa CO (CH hysteresis) - switching to heating mode. Range [0.2°C to 5.0°C]
5	Moc dmuchawy w grzaniu (Blower power in heating mode)	Blower power in heating mode. Range [25% to 100%]
6	Moc dmuchawy w trybie ręcznym (Blower power in manual mode)	Blower power set in manual mode. Range [25% to 100%]

5.2. Parametry użytkownika (User parameters)

Select **Parametry użytkownika** (User parameters) menu and press **OK**.

Item	Parameter	Description
1	Regulator temperatury kotła (Boiler temperature regulator)	Central heating temperature at the boiler outlet: <ul style="list-style-type: none"> •Programator CO (CH programmer) - CH set temperature is set manually on the control panel, and reduced temperature is set based on programmed weekly schedule Programatory (Programmers) → Programator CO (CH programmers) → Tablica dobową (Daily schedule), and Temperatura CO obniżona (Reduced CH temperature) parameter. •Programator CO (CH programmer) - CH set temperature is set based on weather compensation programmer algorithm, and reduced temperature is set based on programmed weekly schedule Programatory (Programmers) → Programator pogodowy (Weather compensation programmer) → Tablica dobową (Daily schedule), and Temperatura CO obniżona (Reduced CH temperature) parameter.
2	Temperatura CO obniżona (Reduced CH temperature)	Temperature value by which CH set temperature is reduced (display: ↓) if low temperature is set in the weekly schedule or if connected thermostat opens the contact. <i>Range [0°C to 30°C]</i>
3	Regulator temperatury wewnętrznej (Internal temperature regulator)	Parameter for setting internal temperature: <ul style="list-style-type: none"> •Programator pokojowy (Room thermostat) – Room thermostat will maintain set temperature in the room (day or night - depending on weekly schedule). If room temperature exceeds value set in Programatory (Programmers) → Programator pokojowy (Room thermostat) → Temperatura dzienna (lub nocna) (Day/night temperature), CH temperature at the boiler is reduced by the value set for Temperatura CO obniżona (Reduced CH temperature) parameter. CH pumps operation may also be defined (Parametry zaawansowane (Advanced parameters) when CH temperature reduction does not cause temperature decrease in the room. An internal temperature sensor must be connected to activate the option. •Termostat (Thermostat) - CH set temperature set manually on the control panel. In case the thermostat contacts are open, CH set temperature will be reduced by value set for Temperatura CO obniżona (Reduced CH temperature). CH pumps operation may also be defined (Parametry zaawansowane (Advanced parameters) when CH temperature reduction does not cause temperature decrease in the room.
4	Tryb CWU (DHW mode)	Parameter for setting DHW pump operation mode:

Item	Parameter	Description
		<p>•Zima (Winter) – normal DHW pump operation in winter mode. Both CH pump (central heating) and DHW pump (domestic hot water tank) are active.</p> <p>•Lato (Summer) – DHW pump operation in summer mode. CH pump is stopped (no central heating).</p> <p>•AutoLato-t.zew (Auto summer - external temperature) – automatic summer mode with external temperature setting in normal mode. Depending on external temperature (external temperature sensor is required) the controller will automatically switch from Lato (Summer) to Zima (Winter) mode and vice versa. Activation threshold for switching summer/winter mode is available in the advanced settings menu: Temp. zewnętrzna dla Auto-Lato (External temperature for automatic summer mode)</p> <p>•AutoLato-prog. (Automatic summer - programmer) - switches Lato/Zima (Summer/Winter) mode in accordance with defined times in AutoLato-prog (Automatic summer programmer) mode – available in Programatory (Programmers) -> Programator AutoLato (Automatic summer programmer)</p>
5	Priorytet CWU (DHW priority)	Once activated, this function enables additional water heating in DHW tank. If this function is active, when additional water heating is required, CH and floor heating pump are stopped, and DHW pump operates. It is also possible to increase CH set temperature by CH temperature increase parameter. Parameter available in Ustawienia zaawansowane (Advanced settings): Podbicie temp.CO. (CH temperature increase) Range [TAK (Yes)/NIE (No)]
6	Temperatura CWU obniżona (Reduced DHW temperature)	Temperature value by which DHW set temperature is reduced (display: ↓) if low temperature is set in the weekly schedule. Range [0°C to 20°C]
7	Przywróć ustawienia serwisowe (Restore service settings)	Possibility to restore default settings stored by the service centre. Range [TAK (Yes)/NIE (No)]
8	Przywróć ustawienia fabrycznie (Restore factory settings)	Possibility to restore default controller settings. Range [TAK (Yes)/NIE (No)]
9	Język (Language)	Language selection

5.3. Programmers

Programmers facilitate and automate temperature settings based on a daily schedule and user requirements. Seven (7) programmers are available:

- CH programmer
- DHW programmer

- Weather compensation programmer
- Room temperature programmer
- Circulation pump programmer
- Automatic summer programmer
- Floor heating programmer

Tablica dobowa (Daily schedule) is used for all programmers. Daily schedule is set with arrows on the keyboard. After selecting the programmer, use up and down arrow to select weekdays for which the temperature is reduced.

```

Tablica dobowa
niedziela
  
```

Press **OK** to select a weekday and its schedule.

```

niedziela 01:00
-----
                -----
  
```

A weekday is displayed, and the temperature can be reduced. Time for which the value is changed is shown, and the dash for a specific time blinks. Temperature change accuracy is 30 min. Use up and down arrow to change the value (dash on the bottom is the lower temperature). Press left and right arrow to change the time.

Programmer setting method is the same for all programmers. Select **Regulator temperatury kotła** (Boiler temperature regulator) in **Ustawienia użytkownika** (User settings) menu to access active programmer for CH temperature setting.

Select **Regulator temperatury kotła** (Boiler temperature regulator) in **Ustawienia użytkownika** (User settings) menu to access active programmer for internal temperature setting.

a) Programator CO (CH programmer)

Set temperature is set by the user. Reduced CH temperature is set with

Temperatura CO obniżona (Reduced CH temperature) **Poziomu ustawień** (Setting level) in **Parametry użytkownika** (User parameters) menu. Reduced temperature is used with a correct setting in **Tablica dobową** (Daily schedule).

b) Programator CWU (DHW programmer)

The programmer sets temperature for domestic hot water. Reduced DHW temperature is set with **Temperatura CWU obniżona** (Reduced DHW temperature) **Poziomu ustawień** (Setting level) in **Parametry użytkownika** (User parameters) menu. Reduced temperature is used with a correct setting in **Tablica dobową** (Daily schedule).

c) Programator pogodowy (Weather compensation programmer)

The programmer may be used to set the boiler temperature depending on external temperature. For **Programator pogodowy** (Weather compensation programmer) apart from **Tablica dobową** (Daily schedule) it is possible to set weather regulator parameters in two points: **Temperatura CO dla -10°C** (CH temperature for -10 °C) and **Temperatura CO dla +10°C** (CH temperature for 10 °C) (heating curve parameters setting - available in **Programatory** (Programmers). An external temperature sensor is required for correct operation. Activation of **Programator pogodowy** (Weather compensation programmer) is set in **Parametry użytkownika – Regulator temperatury kotła** (User parameters - Boiler temperature regulator).

Temp.dla -10 °C 70 °C

Temp.dla +10°C 40 °C

d) Programator pokojowy (Room programmer)

The programmer selects boiler temperature depending on the conditions in the room. Room temperature programmer requires installation of internal

temperature sensor. Activation of **Programator pokojowy** (Room temperature thermostat) is set in **Parametry użytkownika – Regulator temperatury wewnętrznej** (User parameters - Internal temperature regulator): **Pokojowy** (Room).

If internal temperature exceeds set value of the programmer, set temperature is reduced by the CH temperature decrease value. Additionally CH pump may operate in three (3) modes: Continuous, cyclic and OFF. CH pump operation mode after reaching set temperature is set in **Ustawienia zaawansowane** (Advanced settings): **Tryb pracy pompy CO dla reg. wewnętrznego** (CH pump operation mode for internal temperature regulator). For cyclic CH pump operation, operation and idle time are set with the following parameters: **Czas pracy pompy CO dla reg.wew** (CH pump operation time for internal temperature regulator) and **Czas postoju pompy CO dla reg.wew.** (CH idle time for internal temperature regulator). The settings also apply to active thermostat.

Item	Parameter	Description
1	Temperatura dzienna (Day temperature)	Day temperature maintained in the room. <i>Range [5°C to 35°C]</i>
2	Temperatura nocna (Night temperature)	Night temperature maintained in the room. <i>Range [5°C to 35°C]</i>
3	Histereza (Hysteresis)	The parameter determines value by which the internal temperature is reduced, to start the room heating procedure. <i>Range [0.1°C to 2.0°C]</i>
4	Tablica dobowa (Daily schedule)	Daily schedule to set time intervals for day and night temperature. Upper dash – day temperature, bottom dash – night temperature.

e) Programator pompy cyrkulacyjnej (Circulation pump programmer)

In case of DHW circulation pump activation, it is possible to set time intervals for pump activation. Time intervals are defined in **Tablica tygodniowa** (Weekly schedule - top dash - pump ON, bottom dash - pump OFF).

Item	Parameter	Description
1	Czas pracy pompy cyrkulacyjnej (Circulation pump operation time)	Parameter determines circulation pump operation time (operation - idle - operation - idle ...), if pump operation is set in the programmer (top bar). Range [1min to 60min]
2	Czas postoju pompy cyrkulacyjnej (Circulation pump idle time)	Parameter determines circulation pump idle time (operation - idle - operation - idle ...), if pump operation is set in the programmer (top dash). Range [0min to 60min]
3	Temperatura załączenia pompy cyrkulacyjnej (Circulation pump activation temperature)	Minimum DHW temperature above which the circulation pump may operate. Circulation pump is stopped after DHW temperature is reduced by 0.5 °C. Range [25°C to 60°C]
4	Praca auto w trybie ręcznym (Automatic operation in manual mode)	Parameter enables automatic circulation pump operation in manual mode. Range [TAK (Yes)/NIE (No)]
5	Tablica dobowo (Daily schedule)	Weekly daily schedule to set time circulation pump operation intervals.

f) Programator Auto-Lato (Automatic summer programmer)

If **Auto-Lato-prog** (Automatic summer programmer) mode is set for **Tryb Pracy CWU** (DHW operation mode) you can set intervals to activate summer or winter mode. Time intervals are defined in **Tablica tygodniowa** (Weekly schedule - top dash - summer mode, bottom dash - winter mode).

g) Programator ogrzewania podłogowego (Floor heating programmer)

It selects floor heating temperature depending on the conditions in the room. Programmer requires floor heating temperature sensor installation. **Programator podłogowy** (Floor heating programmer) is activated in **Parametry zaawansowane** (Advanced parameters) – **Funkcja pompy mieszającej** (Mixing pump function): **Podłogowa** (Floor heating).

Item	Parameter	Description
1	Temperatura dzienna (Day temperature)	Day temperature maintained in the room. Range [5°C to 35°C]
2	Temperatura nocna (Night temperature)	Night temperature maintained in the room. Range [5°C to 35°C]
3	Histereza (Hysteresis)	The parameter determines value by which the temperature in a room with floor heating is reduced, to start the room heating procedure. Range [0.2°C to 5.0°C]
4	Czas pracy pompy podłogowej (Floor heating pump operation time)	If temperature is reached, floor heating pump switches to cyclic operation mode. The parameter determines floor heating pump operation time. Time set to 0 stops the pump after reaching set floor heating temperature. Range [0min to 60min]
5	Czas postoju pompy podłogowej (Floor heating pump idle time)	If temperature is reached, floor heating pump switches to cyclic operation mode. The parameter specifies floor heating pump idle time. Time set to 0 results in continuous pump operation, even if set floor heating temperature is reached. Range [0min to 60min]
6	Tablica dobowa (Daily schedule)	Daily schedule to set time intervals for day and night temperature. Upper dash – day temperature, bottom dash – night temperature.

5.4.Internet

It enables parameter setting to connect with the controller via Internet. It requires internet module installed and configuration of required parameters.

Item	Parameter	Description
1	Adres IP (IP address)	Controller IP address as displayed in the local network
2	Maska (Mask)	Subnet mask used in a local computer network.
3	Brama (Gateway)	The default gateway used in a local computer network.
4	Zdalny serwer (Remote server)	Shall the controller connect with a remote server? Remote server enables controller connection via website, to change parameters, view graphs, and to carry out general controller maintenance. Public IP address is not required for the proxy server. More on http://eSterownik.pl Zdalny dostęp (Remote access) tab
5	Adres serwera (Server address)	Proxy server IP address. Server address is always available on http://eSterownik.pl during registration of a new controller – Zdalny dostęp tab
6	Port serwera (Server port)	Proxy server port. Server port is always available on http://eSterownik.pl during registration of a new controller – Zdalny dostęp tab
7	Identyfikator (Identifier)	Unique controller identifier. Identifier is generated automatically during registration of a new controller on http://eSterownik.pl website – Zdalny dostęp tab

Item	Parameter	Description
8	Reset hasel (Password reset)	Setting default passwords for website access. Read only - user: user , password: user Administrator rights - user: admin , password: admin

5.5.Data i czas (Date and time)

Time settings ensuring correct programmer operation. After selecting **Data i czas** (Date and time), a window with time set for the controller is displayed.

Data i czas
2009-08-07 08:49

Change time with up and down arrows. Select date items with right and left arrows.

5.6.Parametry zaawansowane (Advanced parameters)

Used for boiler installation settings.

Item	Parameter	Description
1	Typ podajnika (Feeder type)	Feeder operation mode (combustion algorithm): <ul style="list-style-type: none"> - Retorta-ręczny (Retort - manual) – retort feeder, manual combustion process. Combustion parameters available in Parametry spalania (Combustion parameters) menu. - Retorta-grupowe (Retort - group) – retort feeder, semi-automatic combustion process. Combustion parameters available in Parametry spalania (Combustion parameters) menu. - Retorta-eCoal (Retort - eCoal) – retort feeder, fully automatic combustion process. Combustion parameters available in Parametry spalania (Combustion parameters) menu. - Zasypowy (Hopper) – combustion at an emergency grate. Combustion parameters available in Parametry spalania (Combustion parameters) menu.
2	Minimalna temperatura CO (Minimum CH temperature)	User defined CH set temperature limit. This parameter also defines CH temperature, at which CH pump is activated. CH pump activation threshold reduced by 2 °C from set value. CH pump deactivation 4 °C below set value. <i>Range [42°C to 60°C]</i>
3	Maksymalna temperatura	User defined CH set temperature limit. This parameter

Item	Parameter	Description
	CO (Maximum CH temperature)	also defines CH temperature, at which CH pump is activated (e.g. when room thermostat algorithm forces CO pump to deactivate). <i>Range [65°C to 80°C]</i>
4	CH pump operation mode for internal regulator	Parameter determines CH pump operation with active room thermostat/thermostat. After room temperature is reached, CH pump may operate in three (3) modes: <ul style="list-style-type: none"> - Ciągła (Continuous) – always ON – reduced CH set temperature after reaching set temperature in the room – CH pump does not stop. - Cykliczna (Cyclic) – CH pump operates in cyclic mode with set operation/idle time intervals - parameter 5 and 6 - after reaching set temperature in the room. - Wyłączona (OFF) – CH pump is stopped after reaching set temperature in the room.
5	Czas pracy pompy CO (CH pump operation time)	Parameter determines CH pump operation time for active room temperature thermostat/thermostat and determined CH pump cyclic operation - parameter 4. <i>Range [1min to 99min]</i>
6	Czas postoju pompy CO (CH pump idle time)	Parameter determines CH pump idle time for active room temperature thermostat/thermostat and determined CH pump cyclic operation - parameter 4. <i>Range [1min to 99min]</i>
7	Funkcja wyjścia pompy CWU (DHW pump output function)	DHW pump operation mode: <ul style="list-style-type: none"> - CWU (DHW) – DHW pump is used as a pump for filling the domestic hot water tank - CWU + miesz (DHW + mixing) – DHW pump functions as a pump for filling the domestic hot water tank and mixing pump and a mixing pump returning the water to the boiler through DHW exchanger (short circuit). This function enables use of mixing pump output to connect circulation pump or floor heating pump.
8	Histereza CWU (DHW hysteresis)	DHW temperature hysteresis. Above set DHW temperature – deactivated DHW pump, below DHW set temperature minus Histereza CWU (DHW hysteresis) – DHW pump is activated. <i>Range [0.2°C to 5.0°C]</i>
9	Podbicie temp. CO przy prioritycie CWU (CH temp. increase in DHW priority mode)	Parameter determines °C, the CH set temperature is increased in Priorytet CWU (DHW priority) mode if water requires heating. <i>Range [0°C to 10°C]</i>
10	Temperatura zewnętrzna dla Auto-Lato (External temperature for automatic summer mode)	External temperature, at which the controller switches from summer to winter mode. For correct AutoLato-temp. (Automatic summer - temperature) mode operation, external temperature sensor is required, and Tryb pracy CWU (DHW operation mode): AutoLato-temp (Automatic summer temperature) set <i>Range [0°C to 25°C]</i>
11	Histereza Auto-Lato (Automatic summer mode hysteresis)	Parameter determines hysteresis of switching from summer to winter mode in Auto-Lato-temp. (Automatic summer - temperature) mode <i>Range [0.5°C to 5.0°C]</i>
12	Funkcja pompy	Pump operation mode selection:

Item	Parameter	Description
	mieszającej (Mixing pump function)	<ul style="list-style-type: none"> - pompa mieszająca (mixing pump) – function maintaining minimum return water temperature - pompa cyrkulacyjna (circulation pump) – function ensures continuous circulation of domestic hot water from the heater to the tap - pompa podłogowa (floor heating pump) – floor heating function. Temperature sensor connected to the terminals: Floor heating sensor.
13	Niezależna praca pompy mieszającej (Independent mixing pump operation).	<p>Items:</p> <ul style="list-style-type: none"> - Nie (No) – Normal mixing pump operation depending on CH pump operation - Tak (Yes) – Mixing pump operates irrespective of CH pump - mixing pump operation in summer mode available (with CH pump stopped).
14	Temperatura załączenia pompy mieszającej (Mixing pump activation temperature)	Minimum return water temperature, below which the mixing pump is activated. Mixing pump is deactivated, if return temperature is increased by 0.5 °C. <i>Range [25°C to 60°C]</i>
15	Maksymalna temp. podajnika (Maximum feeder temperature)	Setting maximum feeder temperature. Feeder alarm is activated above set temperature. Fuel is removed from the furnace if alarm is activated. Fuel removal time is set with the next parameter. <i>Range [40°C to 110°C]</i>
16	Czas wyrzutu paliwa (Fuel removal time)	Parameter determines feeder activation time after Zapłon paliwa w podajniku (Fuel ignition in the feeder) alarm is activated. Fuel is removed from the furnace to the ash pan for a set time. <i>Range [1min to 10min]</i>
17	Algorytm wygaszenia kotła (Boiler put out algorithm)	Boiler put out algorithm in sustain and heating mode, based on flue gas temperature: <ul style="list-style-type: none"> - Nieaktywny (Inactive) - boiler put out detection deactivated in heating and sustain mode. In case the boiler is put out, no alarm is generated and operation is not stopped. - Tylko grzanie (Heating only) - boiler put out detection in heating mode only. - Tylko podtrzymanie (Sustain only) – boiler put out detection in sustain mode only. - Aktywny (Active) – boiler put out detection in heating and sustain mode.
18	* Alarm zewnętrzny * (External alarm)	Potential free contact connected to Alarm zewnętrzny (External alarm) input signalling external events in the boiler room, depending on connected device, e.g. hopper hatch open, smoke detector active or increased carbon monoxide concentration.
19	* Alarm zewnętrzny * – Czas opóźnienia (External alarm – Delay time)	Delay time, after which the external alarm is generated. <i>Range [0s to 600s]</i>
20	* Alarm zewnętrzny * – Inwersja wejścia (External alarm – Input inversion)	Possibility to set a reverse logic for alarm input. <i>Range [TAK (Yes)/NIE (No)]</i>

Item	Parameter	Description
21	* Alarm zewnętrzny * – Zatrzymanie po alarmie (External alarm – Stop after alarm)	The controller can be stopped (switching from manual mode with feeder and blower OFF) after external alarm is generated. <i>Range [TAK (Yes)/NIE (No)]</i>
22	Zapis ustawień serwisowych (Save service settings)	Restore all controller settings as service settings. In Parametry użytkownika (User parameters) menu the parameters can be restored: <i>Range [TAK (Yes)/NIE (No)]</i>

6. Alarms

Before alarm is generated, it is indicated with a red LED on the control panel. Select alarm with up and down arrow (↑ - ↓), read the message, diagnose and remove the fault and press **OK** to confirm. In case of more than one alarm, scroll using left and right arrow (← →). First line shows number of alarms generated, second shows the alarm message.

Alarm 1/3
Temp CO > 90

Item	Alarm name	Description
1	Termik CO (CH thermal overload relay)	Activation of thermal overload relay - protection against water boiling in the boiler. After alarm occurs, wait until the temperature is reduced below 50°C to acknowledge the alarm.
2	Temp. CO > 90 °C (CH temp. >90 °C)	90°C exceeded on the boiler
3	Uszk. cz. CO (CH sensor failure)	CH sensor failure
4	Uszk. cz. CWU (DHW sensor failure)	DHW sensor failure
5	Uszk. cz. powrotu (Return sensor failure)	Damaged return sensor
6	Uszk. cz. wew. (Internal sensor failure)	Internal sensor failure
7	Uszk. cz. zew. (External sensor failure)	External sensor failure
8	Uszk. cz. podajnika (Feeder sensor failure)	Feeder sensor failure
9	Uszk. cz. spalin (Flue gas temp. sensor failure)	Flue gas temperature sensor failure
10	Uszk. cz. podłógówki	Floor heating sensor failure.

Item	Alarm name	Description
	(Floor heating sensor failure)	
11	Zapłon paliwa (Fuel ignition)	Fuel ignition in the feeder – exceeding set temperature in the feeder – set Czas wyrzutu paliwa [min] (Fuel removal time) parameter for this alarm
12	Wysoka temp. podajnika (High feeder temperature)	Excessive feeder temperature – indicates high feeder temperature, without stopping the feeder. If temperature on the feeder increases by 5°C, Zapłon paliwa (Fuel ignition) alarm is activated.
13	Kocioł wygaszony (Boiler put out)	Boiler is put out – alarm in sustain and heating mode. Alarm is activated: - in heating mode - if flue gas temp. in 30 min. will not exceed 50 °C. Check boiler for impurities - sustain mode – in sustain mode, flue gas temperature will not rise by 5 °C. Incorrect sustain mode parameters
14	Wyczyść kocioł (Clean the boiler)	Boiler is dirty – check heat exchanger and flue for impurities
15	Wysoka t.spalin (High flue gas temperature)	Excessive flue gas temperature – check correct installation of boiler heat exchanger components
16	Konflikt adr.IP (Incorrect IP address)	Incorrect IP address – IP address is used by another device
17	Błąd pamięci EEPROM (EEPROM memory error)	Controller memory error – restore factory settings
18	Alarm zewnętrzny (External alarm)	KONT contact shorted on the controller board - universal alarm input
19	Pusty zasobnik (Hopper empty)	Low fuel level in the hopper – alarm does not stop boiler operation. It provides fuel combustion statistics

7.Proxy software - eCoal.pl

A software providing a proxy server for RS232 port and a web server is available for controller management via RS232 port.

To manage **eCoal.pl** controller via website, with RS232 port:

- Download software from eCoal.pl, **Wsparcie** (Support) tab: eCoalWWWProxy and run,
- Define COM port used for controller connection,
- Define login, password and local port for web server operation (example: 8080),
- Press Start to run server.

From now on, entering ***http://localhost:8080/*** address in the browser enables controller management via internet browser.

The controller can also be shared with other users in local network by entering ***http://server_IP:port/*** eg. ***http://192.168.0.2:8080/*** in the browser

The software can also be run in Android systems, by specifying controller address in local network as: server_IP:port 192.168.0.2:8080

More information available on ***eSterownik.pl***:

<http://esterownik.pl/forum/posty,693/>

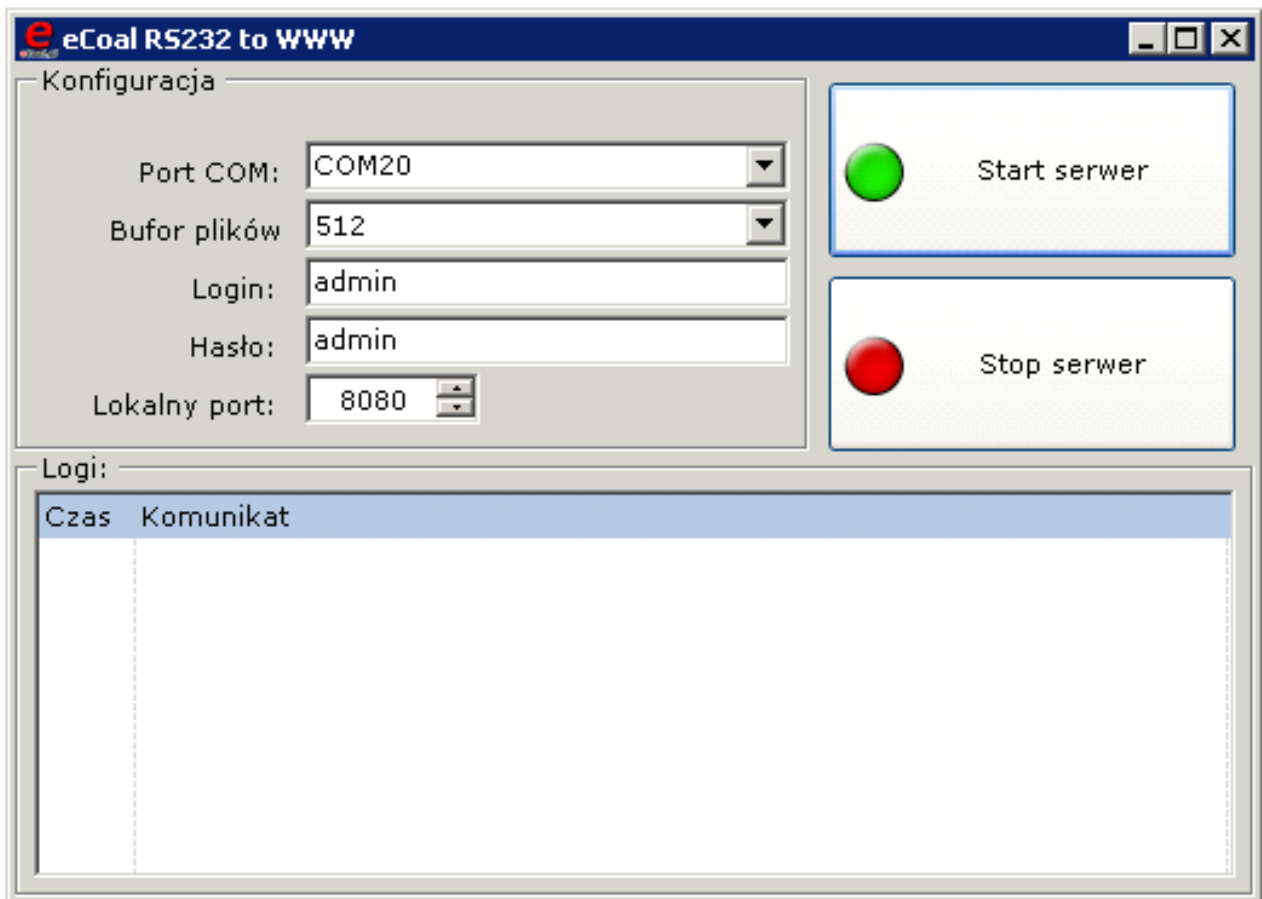


Fig. 8: eCoalWWWProxy software

7.1. Controller software update

Ensure the following to update the ***eCoal.pl*** controller software:

- PC with Windows OS

- serial port or USB/RS232 adapter
- RS232 cable delivered with a controller
- latest software downloaded from <http://eCoal.pl> **Wsparcie** (Support) tab:

4. Controller updater

Due to continuous development and improvements of **eCoal.pl** controller, test software builds are regularly made available. Test builds include numerous amendments and new functions. Controller updater software is available on: <http://sterownik.pl/forum/posty,33>

To start software update in the controller, connect the PC with **RS232** cable, RS232/USB adapter is available if RS232 port is not available.



Fig. 9: RS232 cable



Fig. 10: RS232 controller connector

Start the updater software: **eCoalUpdater.pl_X.X.X.X.exe**

To start the controller software update, select RS232 communication port, to which the controller is connected. For RS232/USB adapter, check the port in Windows OS *Device manager*. If the controller is connected correctly, information on connection is displayed (bottom left corner of the Updater window).

Connect the controller and press: **Aktualizuj oprogramowanie** (Update software). Wait for the update to complete (information in Updated dialog box).

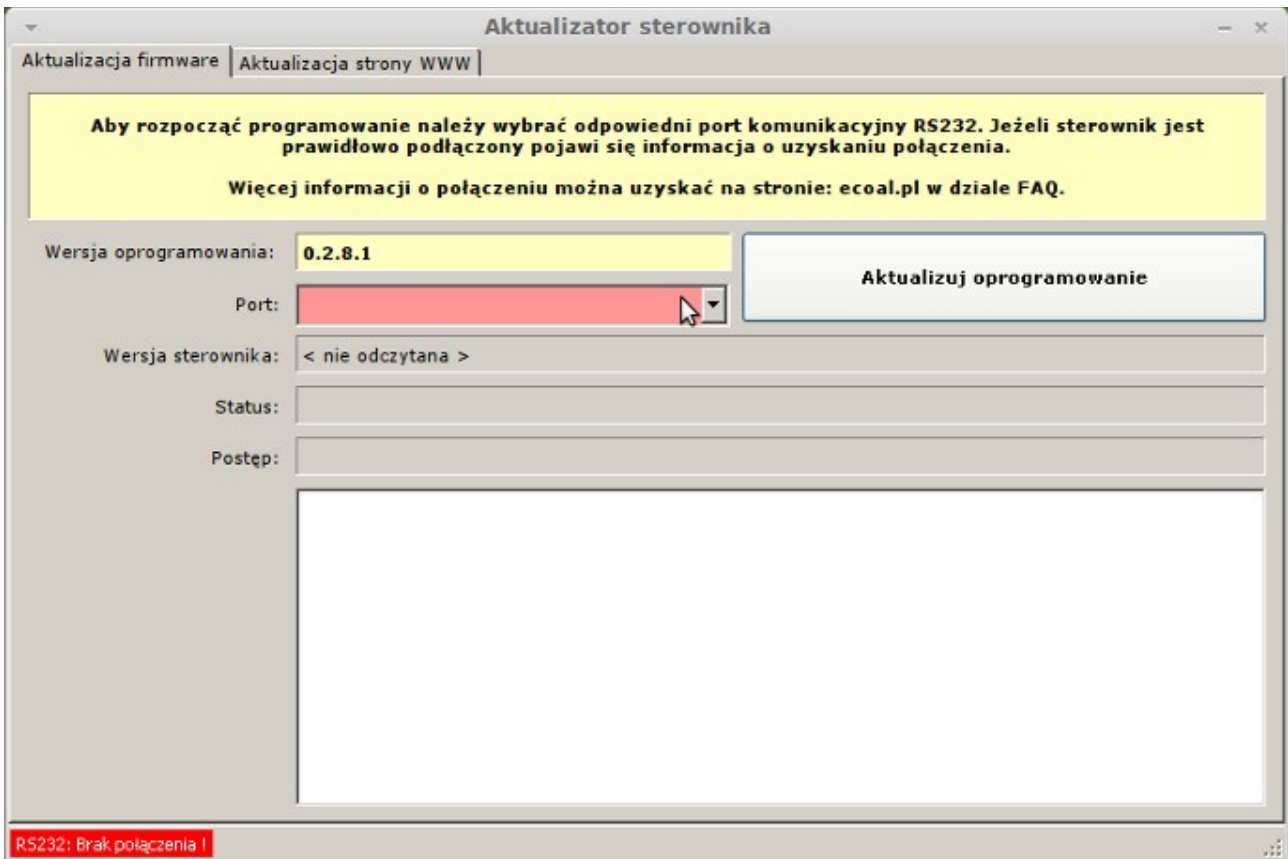


Fig. 11: Software update

Caution!

In case of update error, update is stopped and **Loading...** message is displayed on the controller:

1. Turn off the controller.
2. Run updater again.
3. Select RS232 port (if adapter is used, disconnect and reconnect USB)
4. Press software update button.
5. Status will change to: **Oczekiwanie na sterownik** (Waiting for controller)
6. Switch the controller ON.
7. Update process will start.

Try again if the first attempt did not succeed.

Update process does not allow controller failure due to software update.

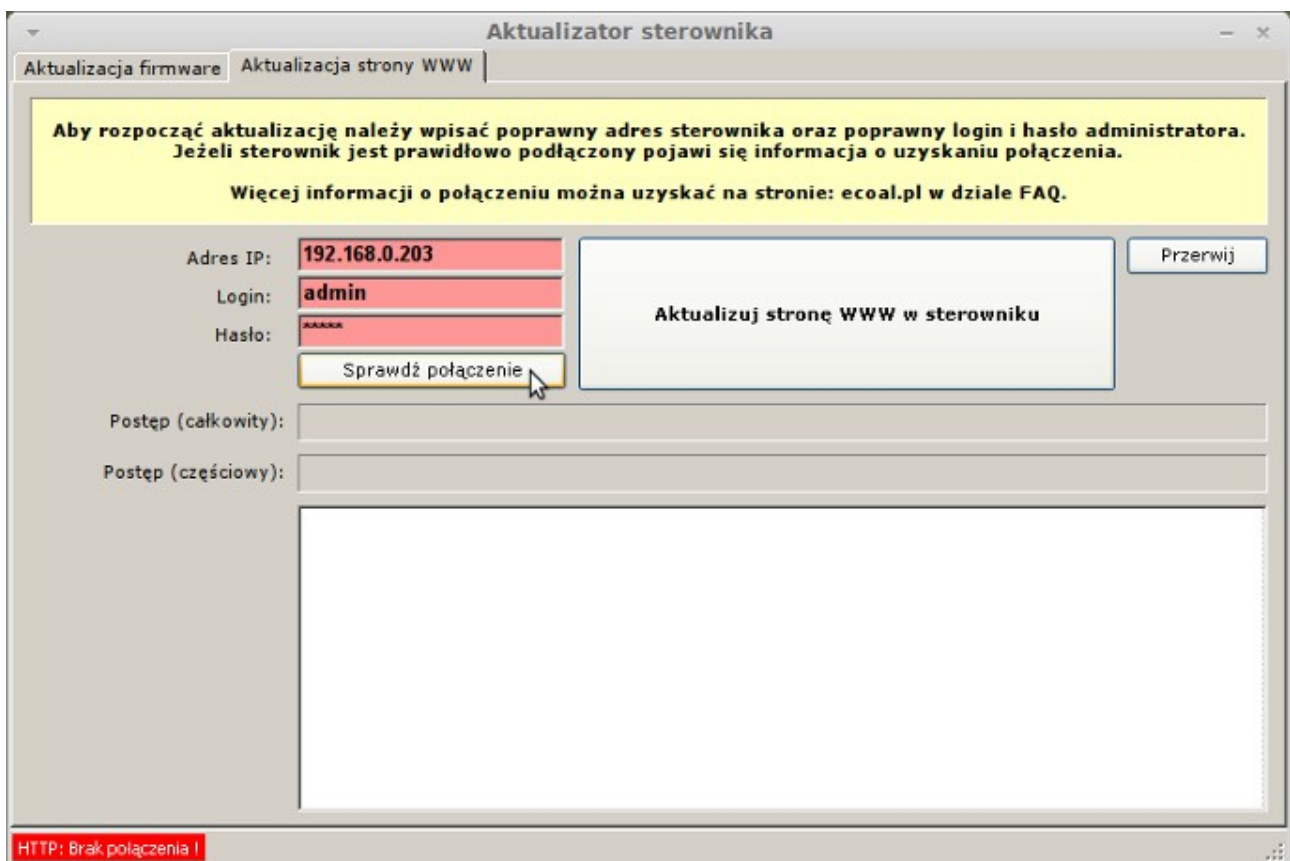
Update website after the software update is completed.

Use the same software as used for the controller software update: **eCoalUpdater.pl_X.X.X.X.exe** and select: **Aktualizacja strony www** (Website update) tab - top Updater bar.

Connect the controller to the local Ethernet with RJ45 cable. The controller is assigned with a unique IP address, mask and gateway (detailed description is indicated in item *Setting local network parameters in the controller*).

Fill in the fields in the updater: Adres IP (IP address) - enter controller IP address. Enter administrator login and password (with proper rights) on the website (*default login: admin, password: admin*). Click the button: **Check connection**. Connect the controller and click: **Aktualizuj stronę WWW w sterowniku** (Update website in the controller)

Exit the updater after the update is completed.



Aktualizator sterownika

Aktualizacja firmware | Aktualizacja strony WWW

Aby rozpocząć aktualizację należy wpisać poprawny adres sterownika oraz poprawny login i hasło administratora. Jeżeli sterownik jest prawidłowo podłączony pojawi się informacja o uzyskaniu połączenia.

Więcej informacji o połączeniu można uzyskać na stronie: ecoal.pl w dziale FAQ.

Adres IP: 192.168.0.203

Login: admin

Hasło: *****

Sprawdź połączenie

Przerwij

Aktualizuj stronę WWW w sterowniku

Postęp (całkowity):

Postęp (częściowy):

HTTP: Brak połączenia!

Fig. 12: Software update

Website can also be loaded from the .zip archive directly onto the SD card.

7.2. Controller connection to local network

The controller is connected to the local network in the same way you connect a PC. Use cable with two RJ45 connectors to a free router or switch socket. It is also necessary to set **adres IP** (IP address) **brama** (gateway) and **maska** (mask). Internet access is available via **Zdalny dostęp** (Remote access) service.

Depending on Internet provider and equipment:

Service type	Internet connection method	Controller connection
DSL/ADSL link (Neostrada, Net24 etc.)	USB modem	Purchase router with ADSL modem
	Router (e.g. Livebox) with free RJ45 connector	OK
GPRS/UMTS/HSDPA connection (iPlus, blueconnect, Orange Free, Play Online etc.)	USB modem	Purchase GPRS/UMTS/HSDPA compatible router
	WiFi modem	Purchase Access Point
Cable link (chello, Vectra, Toya etc.)	Cable modem with a single RJ45 output	Purchase switch/router
Other internet provider	Modem connected to PC via RJ45	Purchase switch/router
	Switch/Router with free RJ45 socket	OK
	WiFi modem	Purchase Access Point
No Internet access (access via local network only)	No switch, no local network	Setting local network parameters in the controller. Use switch. (no remote access service)
	Switch	OK (no remote access service)

Set three network parameters: **adres IP** (IP address) **brama** (gateway) and **maska** (mask).

7.3. Setting local network parameters in the controller

1. In Windows, click **Start**, and select **Run**
2. Enter **cmd** and click OK.

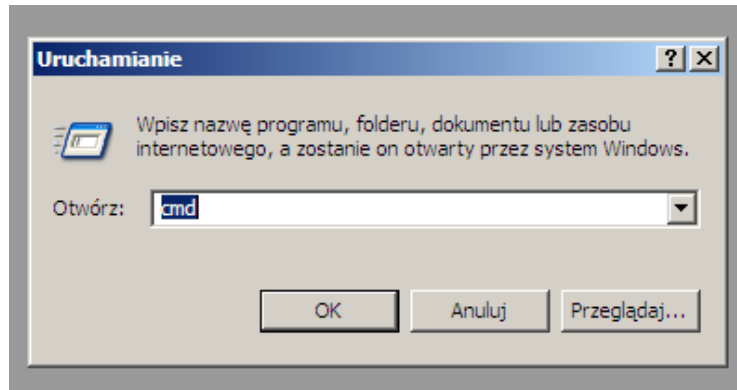


Fig. 13: **Run** window in Windows OS

3. Console is opened.
4. Enter **ipconfig** and press **Enter**

The required data are circled:

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Wersja 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\dominik>ipconfig

Konfiguracja IP systemu Windows

Karta Ethernet Local Area Connection:

    Stan nośnika . . . . . : Nośnik odłączony
Karta Ethernet Wireless Network Connection:

    Sufiks DNS konkretnego połączenia : Es
    Adres IP. . . . . : 192.168.0.43
    Maska podsieci. . . . . : 255.255.255.0
    Brama domyślna. . . . . : 192.168.0.254
C:\Documents and Settings\dominik>_
```

Fig 14: Console window in Windows OS

5. Set identical **brama** (gateway) and **maska** (mask), **IP address** must be different.

Change the last IP address, for example *192.168.0.69*.

6. Check, if the IP address is not used by other devices:

Enter **ping 192.168.0.69** in the Windows console and press **Enter**

If similar message is displayed:

```
Odpowiedź z 192.168.0.1: bajtów=32 czas=2ms TTL=128
Odpowiedź z 192.168.0.1: bajtów=32 czas=2ms TTL=128
Odpowiedź z 192.168.0.1: bajtów=32 czas=2ms TTL=128
```

select other IP address, if the following message is displayed:

```
Upłynął limit czasu żądania.
Upłynął limit czasu żądania.
Upłynął limit czasu żądania.
```

it indicates, that the IP address is not used.

7. Enter **gateway** and **mask** previously read in the console and selected **IP address**.

Select **Internet** menu on the control panel:

- press and hold **OK**
- press **up** and **down** arrow to select **Internet** and press **OK**
- enter **adres IP** (IP address), **brama** (gateway) and **maska** (mask).

8. Connect the controller with twisted pair with RJ45 connector to a local network:

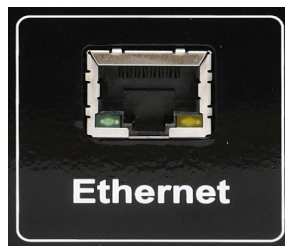


Fig. 15: Ethernet connector in **eCoal.pl** controller

9. The controller shall automatically connect to the network. To enter **Panel WWW** (Website panel), enter previously set controller IP address in the internet browser.

7.4. Website panel in the controller

Default sign in parameters:

-User with limited access (read only) – user: **user**, password: **user**

-User with administrator rights (parameter change) – user: **admin**, password: **admin**

Sign in parameters can be changed via website, see **Ustawienia** (Settings)
→ **Internet** (Internet).

We recommend Mozilla Firefox or Google Chrome.

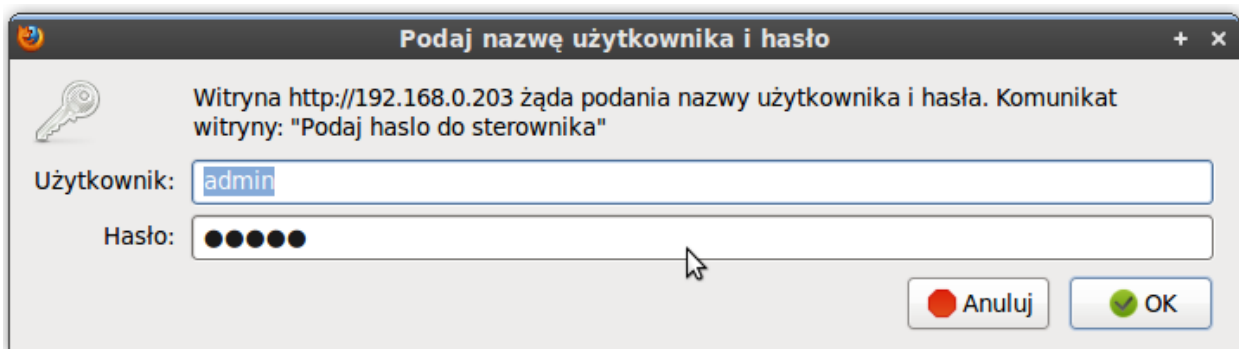


Fig. 16: Signing in on **eCoal.pl** controller website

CH and DHW installation diagrams are showed in the main page. Temperature sensor readouts are updated on-line. In the manual operation mode, the devices can be switched ON/OFF by clicking on the feeder, blower and pump icon. Select **TRYB AUTOMATYCZNY** (Automatic mode) to change the operation mode.

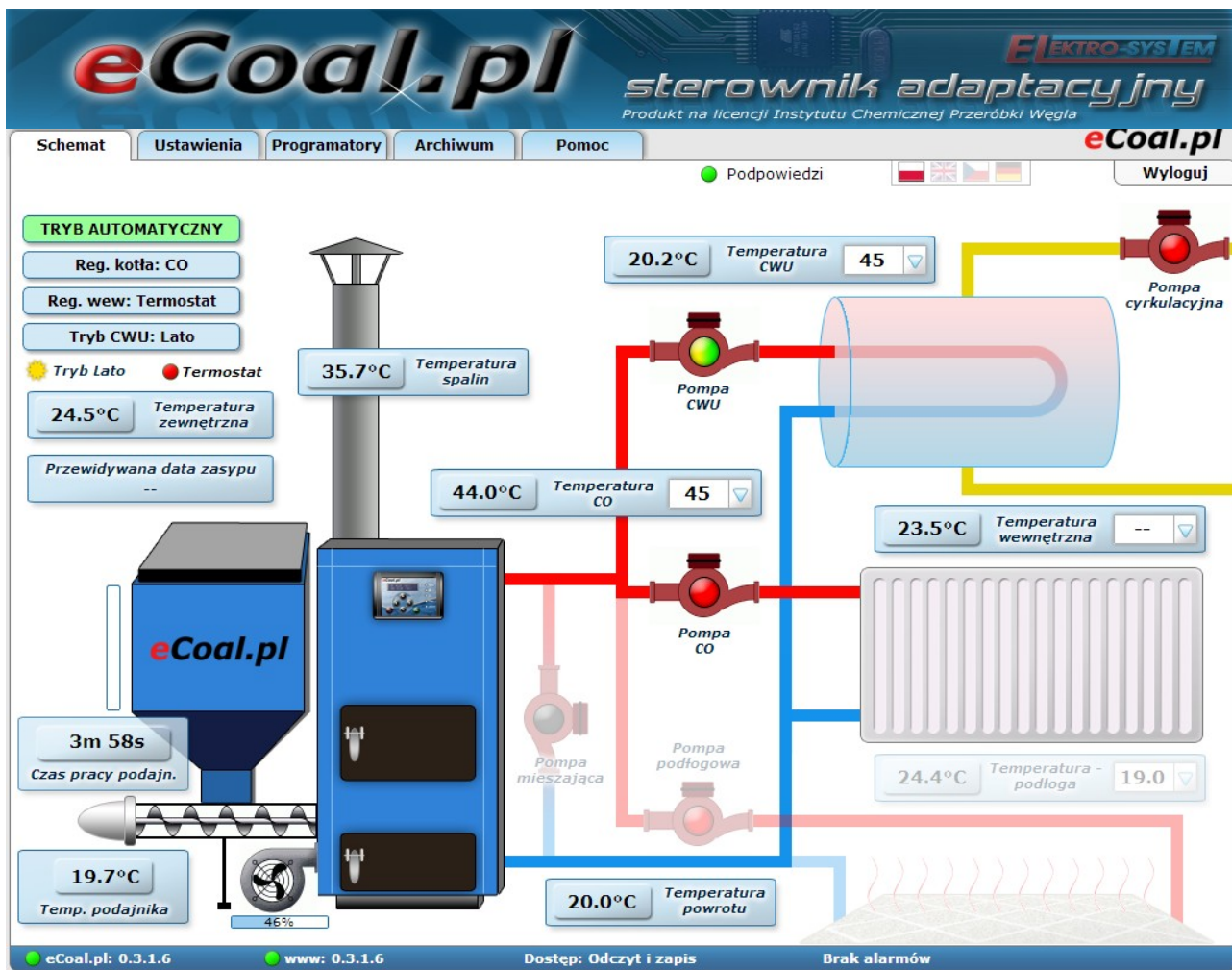


Fig. 17: **eCoal.pl** controller main website window

All parameters set on the LCD panel are also available on **eCoal.pl** controller website. Parameters can be changed by users with administrator rights.

Time and date, Ethernet parameters, and advanced parameters can be set and all temperature sensors can be calibrated via website.

eCoal.pl sterownik adaptacyjny
Produkt na licencji Instytutu Chemicznej Przeróbki Węgla

Schemat Ustawienia Programatory Archiwum Pomoc

Podpowiedzi Wyloguj

Ustawienia - Zaawansowane

Parametry CO

Minimalna temperatura CO [°C]

Maksymalna temperatura CO [°C]

Tryb pracy pompy CO dla reg. wewnętrznego

Czas pracy pompy CO dla reg.wew [min]

Czas postoju pompy CO dla reg.wew [min]

Alarm zewnętrzny

Czas opóźnienia [sek]

Inwersja wejścia

Zatrzymanie sterownika

Parametry CWU

Funkcja pompy CWU

Histereza CWU [°C]

Podbicie temp. CO. [°C]

Temp. zewnętrzna dla Auto-Lato [°C]

Histereza Auto-Lato [°C]

Inne parametry

Maksymalna temp. podajnika [°C]

Czas wyrzutu paliwa [min]

Okres rejestracji

Algorytm wygaszenia kotła

Typ podajnika

Wyjście pompy mieszającej

Funkcja pompy mieszającej

Temp. załączenia pompy miesz. [°C]

Niezależna praca pompy mieszającej

Zapisz Odczytaj

Fig. 18: Advanced parameters window

Weekly schedule for CH programmer is shown below. Blue fields indicate reduced temperature, yellow fields indicate normal temperature. Click field to change colour and function. Press **Zapisz** (Save) to confirm each change in the website panel.

Schemat Ustawienia Programatory Archiwum Pomoc

Podpowiedzi Wyloguj

Programator CWU

	0	1	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Niedziela	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Poniedziałek	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wtorek	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Środa	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Czwartek	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Piątek	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sobota	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Temperatura zadana CWU [°C] ■ Temperatura obniżona CWU [°C]

Zapisz Odczytaj

Fig. 19: Weekly schedule for CH programmer

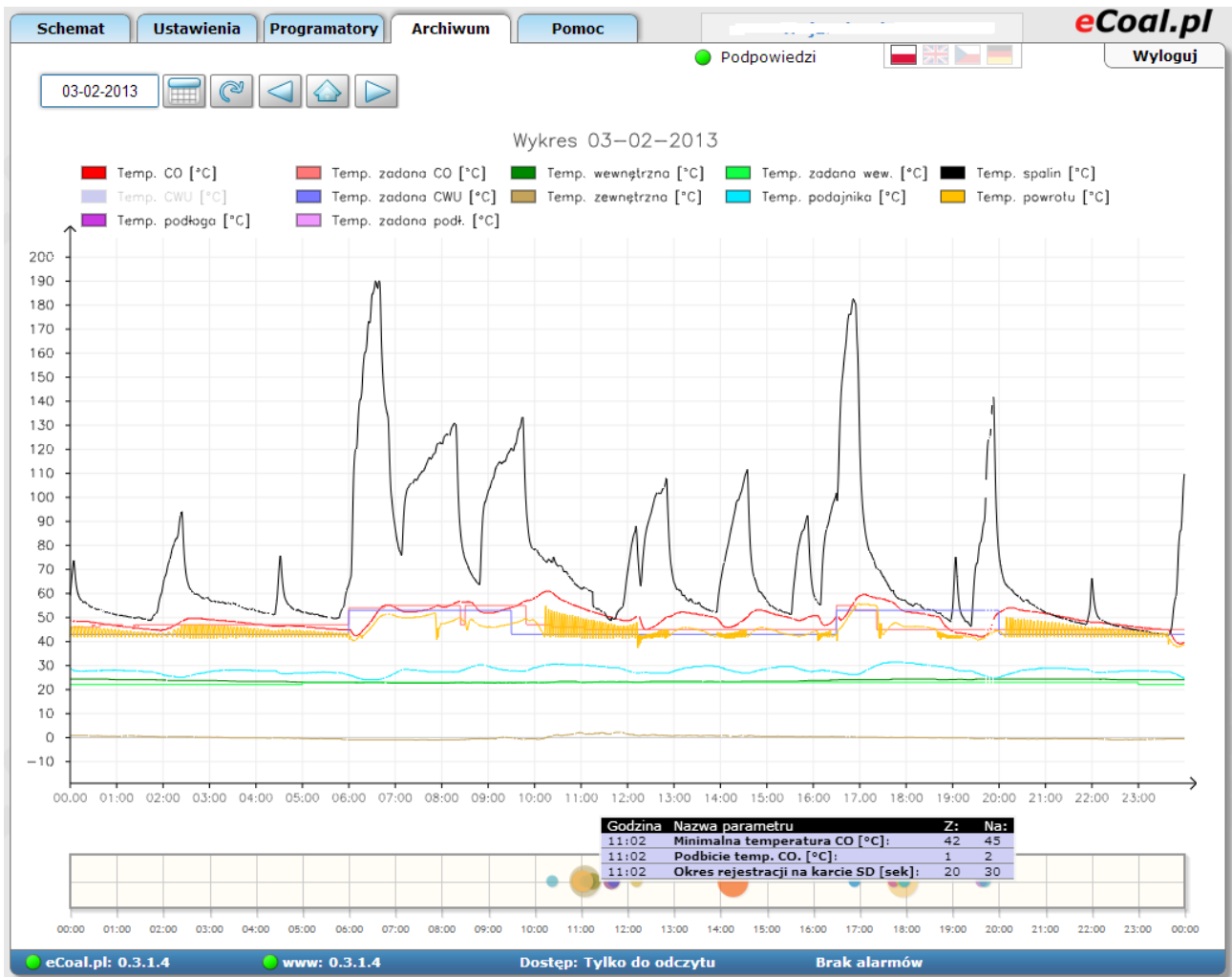


Fig. 20: Diagrams with logged boiler operation parameters

eCoal.pl controller records all operation parameters on the SD memory card. The data are logged every 60 seconds (10, 20 and 30 seconds interval can be set). All parameters can be displayed as graphs. The graphs may be zoomed in (mark the area from the left to the right side) or zoomed out (mark the area from the right to the left side). It is also possible to hide selected measurements - click measurement in the graph key.

eCoal.pl controller logs Ethernet link data usage on SD memory card. Data usage may be viewed as graphs (send and received data). The graphs can be zoomed and specific measurements can be hidden.



eCoal.pl controller logs all entries/website sign ins on the SD memory card. Connected hosts are also shown. Inputs can be viewed as list of hosts, input graphs by day, time or by most viewed hosts.

All alarms and events on the **eCoal.pl** controller are also logged on the SD memory card.

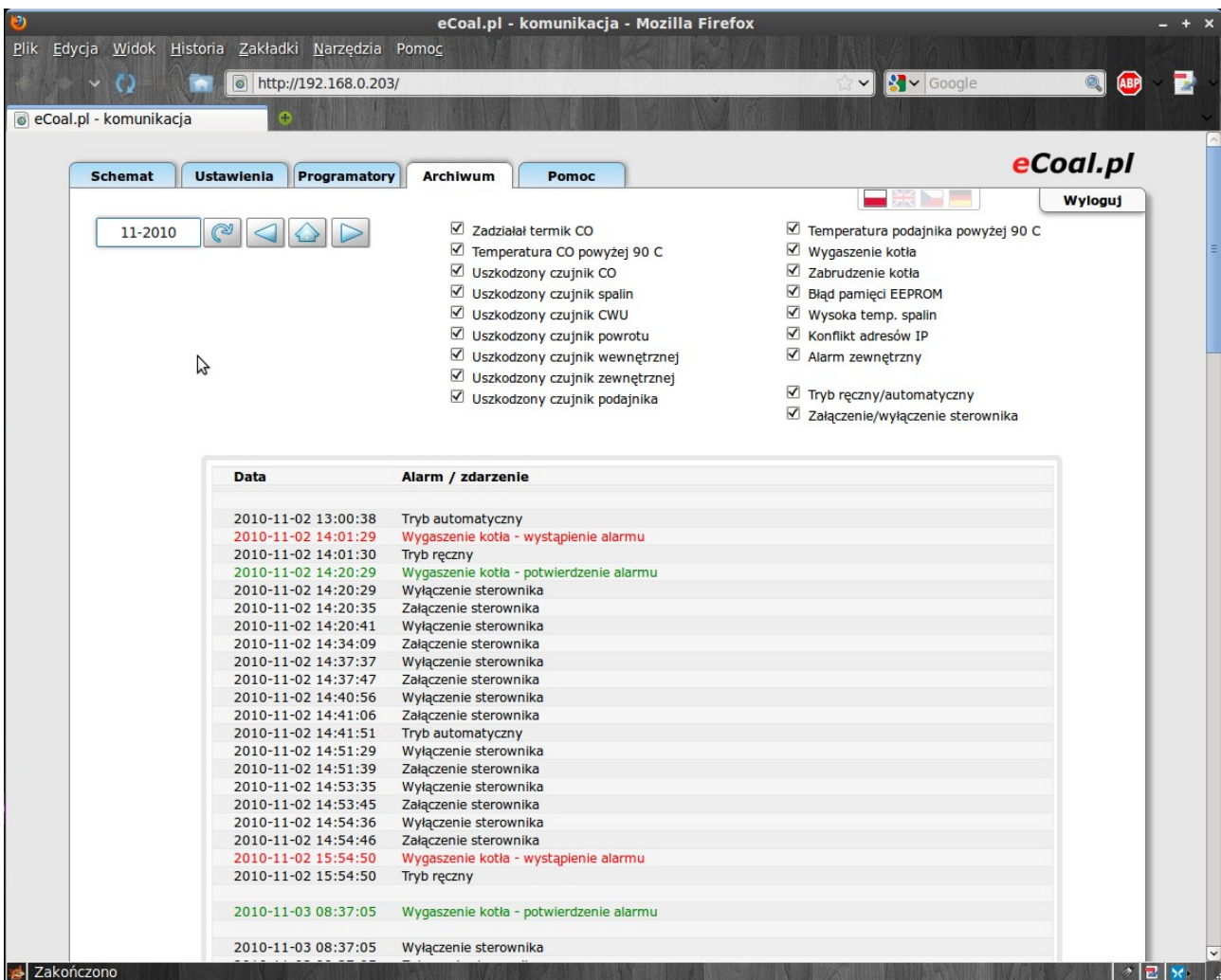


Fig. 21: Alarm and event window

7.5. Connecting controller to remote access service

Zdalny dostęp (Remote access) service is intended for users who purchased the controller and want easy access to boiler parameters via Internet. Service configuration is easy and does not require special experience.

The service helps with the following issues:

–no public IP address (mobile, cable network users etc.)

- no fixed IP address (ADSL users etc.)
- problems with router configuration

The service is free of charge.

1. The first step is to sign up on <http://eSterownik.pl> - click **Zarejestruj się** (Sign up).
2. After signing up, sign in, select MENU and click **Dodaj nowy sterownik** (Add new controller)
3. The controller must be connected to a local network. To connect, see User manual. Press **Dalej** (Next), if the website is available.

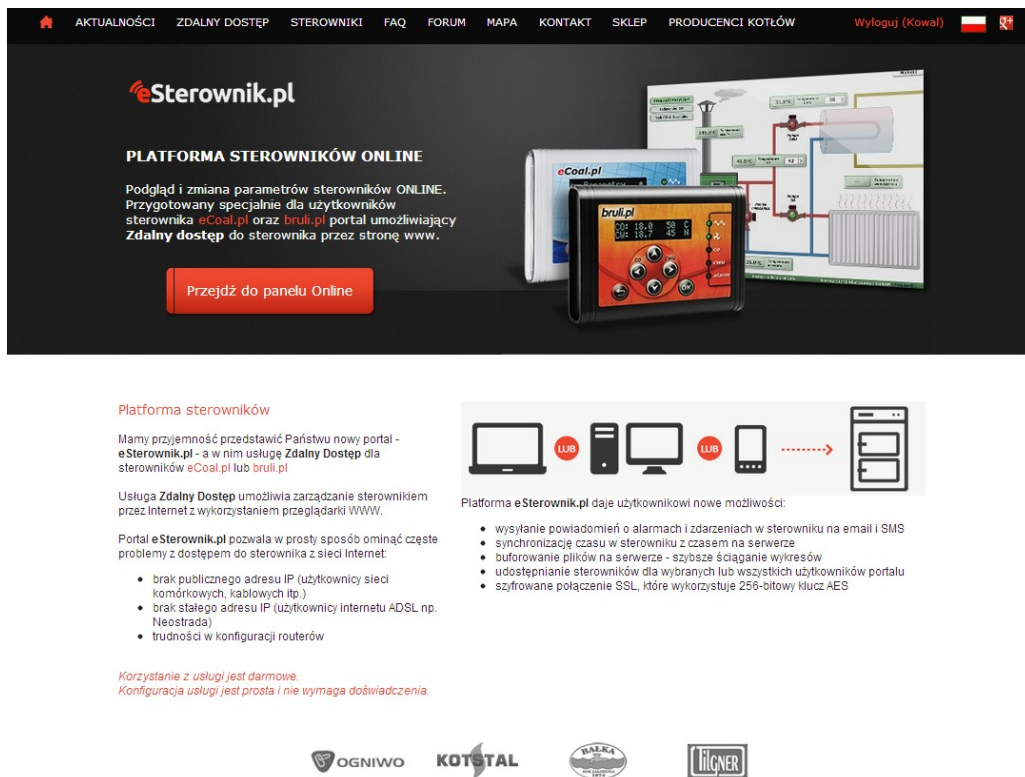


Fig. 22: Main **eSterownik.pl** website screen.

4. Main data

Nazwa (name) – any name, identifying the control

Udostępnij sterownik publicznie (Share control) - share control on



eSterownik.pl website with each visitor, view only (user may change control parameters)

Włącz powiadamianie na email (Email confirmations ON) – turn on e-mail confirmations for alarms

Email do powiadamiania (Confirmation email) – the confirmations and administrator messages will be send to the email entered at registration

Synchronizacja czasu przez Internet (Synchronize time via Internet) – if this option is selected, time is automatically synchronized with the server clock.

5. Enter the following data

Identyfikator (Identifier) - Unique controller identifier

Adres IP serwera (Server IP address) - Proxy server IP address

Port serwera (Server port) - Proxy server port

6. The following data can be set on controller website panel. Enter website panel by entering controller IP address, administrator login and password (*default: admin, admin*). Select **Ustawienia** (Settings) -> **Internet** (Internet) -> **Zdalne połączenie z serwerem** (Remote server connection) and enter **Identyfikator** (ID), **Adres IP serwera** (Server IP address) and **Port serwera** (Server port) entered in remote access window, **Połączenie aktywne** (Active connection) is set to **TAK** (Yes):

7. Click **Zapisz** (Save).

The data can be set on the control panel:

- press and hold **OK**
- press **up** and **down** to select **Internet** and press **OK**
- enter the data in the control panel

Fill in the remaining fields – **Miejsce instalacji** (Installation place) and

Dane dodatkowe (Additional data) if required. The data facilitate technical support using our **FORUM**.

Dodawanie nowego sterownika

Dane podstawowe

Nazwa:

Udostępnij sterownik publicznie:
Sterownik publiczny jest dostępny do odczytu dla wszystkich. Pełne prawa ma tylko właściciel.

Udostępnij statystyki sterownika publicznie:

Synchronizacja czasu przez internet:

Dane do wpisania w sterowniku

Wejść w sterowniku w menu "Internet" i wpisz następujące dane:

Identyfikator:

Adres IP serwera:

Port serwera:

Powiadamianie email

Włącz powiadamianie na email:

Włącz powiadamianie na email:

Włącz powiadamianie na email:

Powiadamianie SMS - Stan konta SMS : 50

Prosimy wpisać tylko 9 cyfr, bez dodawania 48 lub +48

Włącz powiadamianie SMS na numer:

Włącz powiadamianie SMS na numer:

Włącz powiadamianie SMS na numer:

Wybierz alarmy wysyłane SMSem

- | | |
|--|--|
| <input type="checkbox"/> Zadziałał termik CO | <input type="checkbox"/> Temp.CO powyżej 90 °C |
| <input type="checkbox"/> Uszkodzony czujnik CO | <input type="checkbox"/> Uszkodzony czujnik Spalin |

Fig. 23: Main data when adding new controller

8. The following message is displayed:

Dodawanie nowego sterownika

1. Przejdź do zakładki "Ustawienia > Internet > Zdalne połączenie z serwerem" w Panelu WWW sterownika.
2. Ustaw następujące dane:

Zdalne połączenie z serwerem	
Połączenie aktywne	Tak ▾
Identyfikator	D86B2714F7
Adres IP serwera	178.33.55.29
Port serwera	27854
<input type="button" value="Zapisz"/> <input type="button" value="Odczytaj"/>	

Kliknij "Zapisz" w Panelu WWW

3. Upewnij się, że sterownik jest podłączony do internetu oraz, że wpisałeś poprawnie powyższą konfigurację.

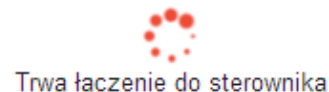


Fig. 24: Form for entering remote access parameters in the controller

9. User is informed about the correct connection with the controller.

The connection may take 5 to 60 seconds. After the controller is connected, a blue icon is displayed by the controller on **Twoje sterowniki** (Your controllers) list:

Lista Twoich sterowników

Sterownik	Nazwa	T.CO / zadana	T.CWU / zadana	Alarmy
<input checked="" type="checkbox"/> eCoal.pl	Seba - eCoal.pl	25.7°C / 50.0°C	25.7°C / 45.0°C	1 alarm
<input checked="" type="checkbox"/> bruli.pl	Zdzisław Sęczkowski - dom	40.6°C / 42.0°C	37.7°C / 38.0°C	

Fig. 25: List of controllers connected

If there are issues with the controller connection, check the connection with local network (**ping** command or local sign in via internet browser) and connecting local network to the Internet. Check if data in the controller are correct.

7.6. Sharing controller with other user

This option allows to share the controller with other users. You can share the controller with other users or with a service centre. It will help with troubleshooting. The service may view logged boiler operation data.

1. Sign in on **eSterownik.pl**
2. Select **Zdalny dostęp** (Remote access) -> **MENU** (MENU) -> **Twoje sterowniki** (Your controllers)
3. Click selected controller on the list
4. Click **Udostępnij** (Share)
5. The following screen is displayed:

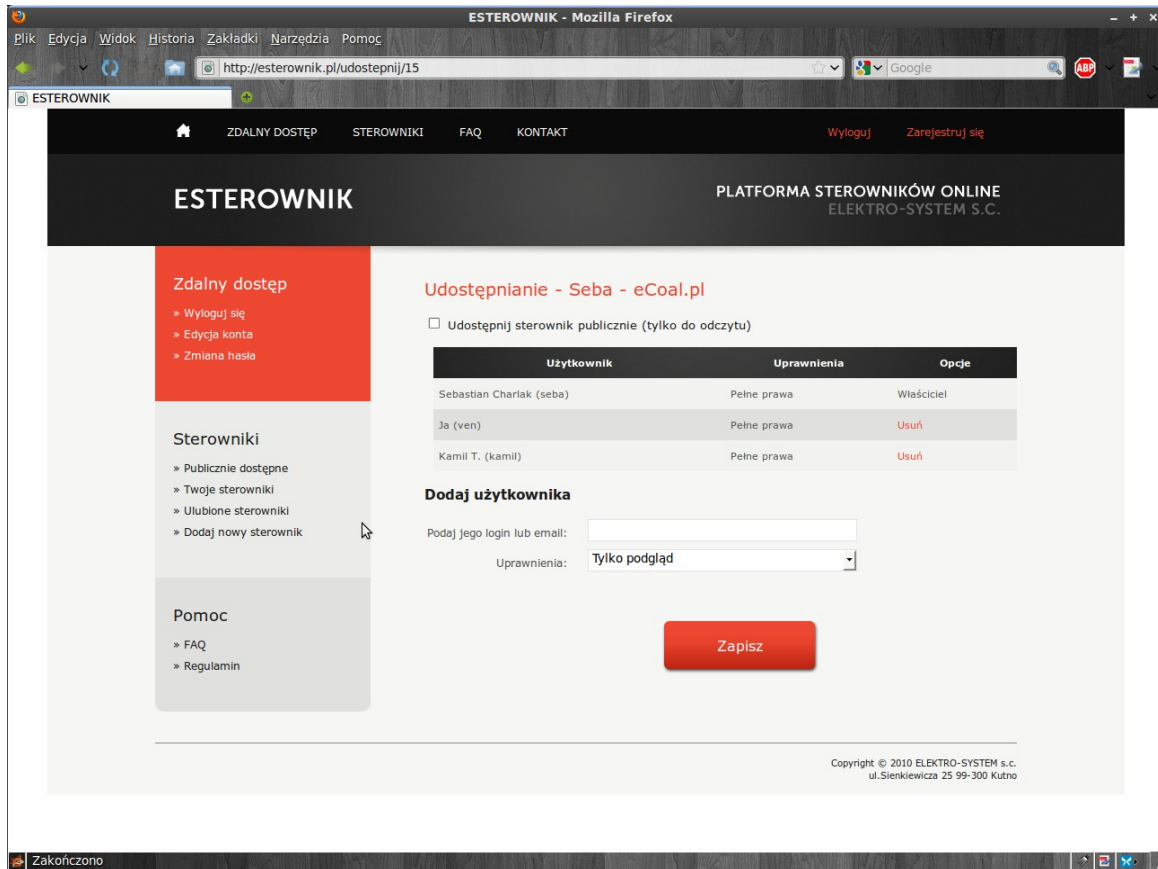


Fig. 26: Controller sharing

6. Enter login or email of the user, you want to share the controller with in **Dodaj użytkownika** (Add user) field. Select user rights:

Tylko podgląd (Read only) – only parameter readout is possible, user may not change any parameters or control the controller.

Pełne prawa (Administrator rights) – read and store parameters, user may control the boiler and modify all controller parameters.

7. Users with specific rights can find the controller in **Twoje sterowniki**(Your controller) tab

Declaration of Conformity

ELEKTRO SYSTEM Plus Sp. Z o.o., with registered place of business at ul. Rychtelskiego 5, Kutno, declares that the product identified as: :

eCoal.pl V2.1 Adaptive Controller

is in conformity with the provisions of the following European directives:

- Directive 2006/95/EC of the European Parliament and of the Council on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- Directive 2004/108/EC of the European Parliament and of the Council on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC

Compliance with these directives is safeguarded by respecting the following standards:

PN-EN 60730-2-9:2006 in conjunction with PN-EN 60730-1:2002 + A1:2008 + A2:2009 + A12:2004 + A13:2005 + A14:2006 + A15:2009 + A16:2009 + Ap1:2007
IEC 60730-2-9:2008 (Third Edition) in conjunction with IEC 60730-1:1999 (Third Edition) + A1:2003+ A2:2007

Last two digits of the year in which the CE marking was affixed: **'09**

This declaration does not represent any warranty of the properties within the meaning of the Product Liability Act. Safety provisions listed in the user manual are to be followed. According to the Low Voltage Directive (LVD), devices with the CE mark should be installed and connected according to the user manual and the provisions of the Electromagnetic Compatibility Directive.

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