Technical documentation

Name of device	**:** Boiler controller
Type	**:** ecoMAX
Serie	**:** 860
Model	: X6 (X – any letter of the alphabet)

Producer: PLUM sp. z o.o.
Ignatki 27A 16-001 Kleosin
Polska

Ignatki, 21.02.2022

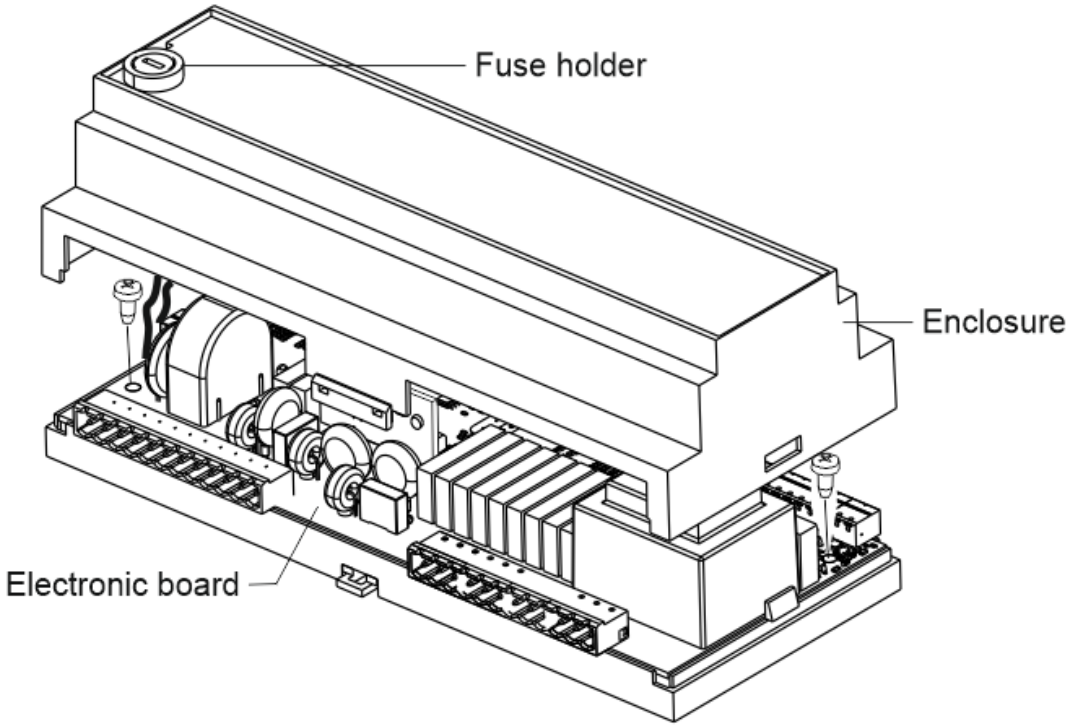
1. Description

The controller ecoMAX860 P6 is a device designed to control the operation of a boiler with automatic feeding of solid fuel with a igniter. Flame detection is performed with the use of an optical flame brightness sensor. It can control the work of central heating instalation and control hot domestic water tank and also control the work of mixing heating circuits. The required temperature of heating circuits can be set on the basis of data obtained from the main sensor. The possibility of cooperation with room thermostats, separate for each heating circuit is beneficial for maintaining comfortable temperature in heating rooms. Moreover, the device turns on the spare boiler (-gas or –oil).

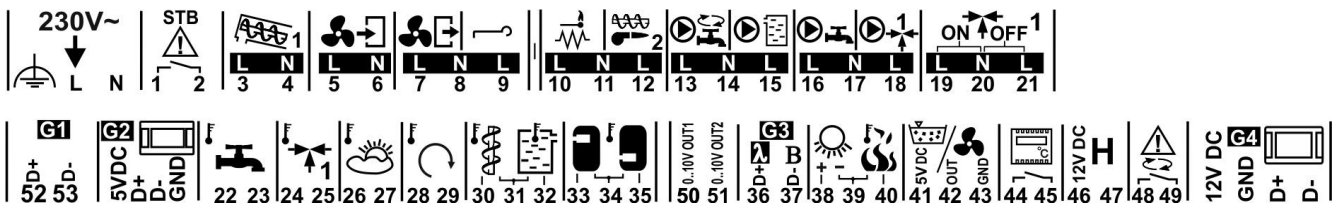
The controller may operate in connection with additional wire room thermostat/panel ecoSTER200, ecoSTER TOUCH and wireless room thermostat/panel eSTER_x80 or eSTER_x40 installed in rooms and ecoNET300 Internet module. Additionally it cooperates with ecoLAMBDA module and extension modules B and C.

The controller may be used in households and other similar premises and in light industry facilities.

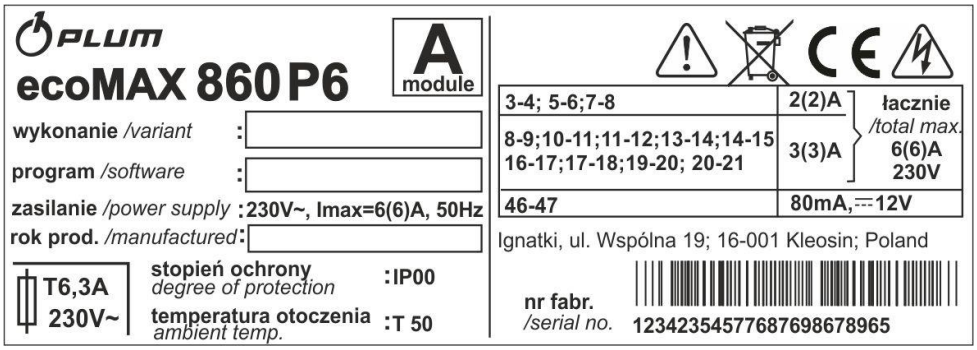
2. Construction



3. Labels



Labels of connectors

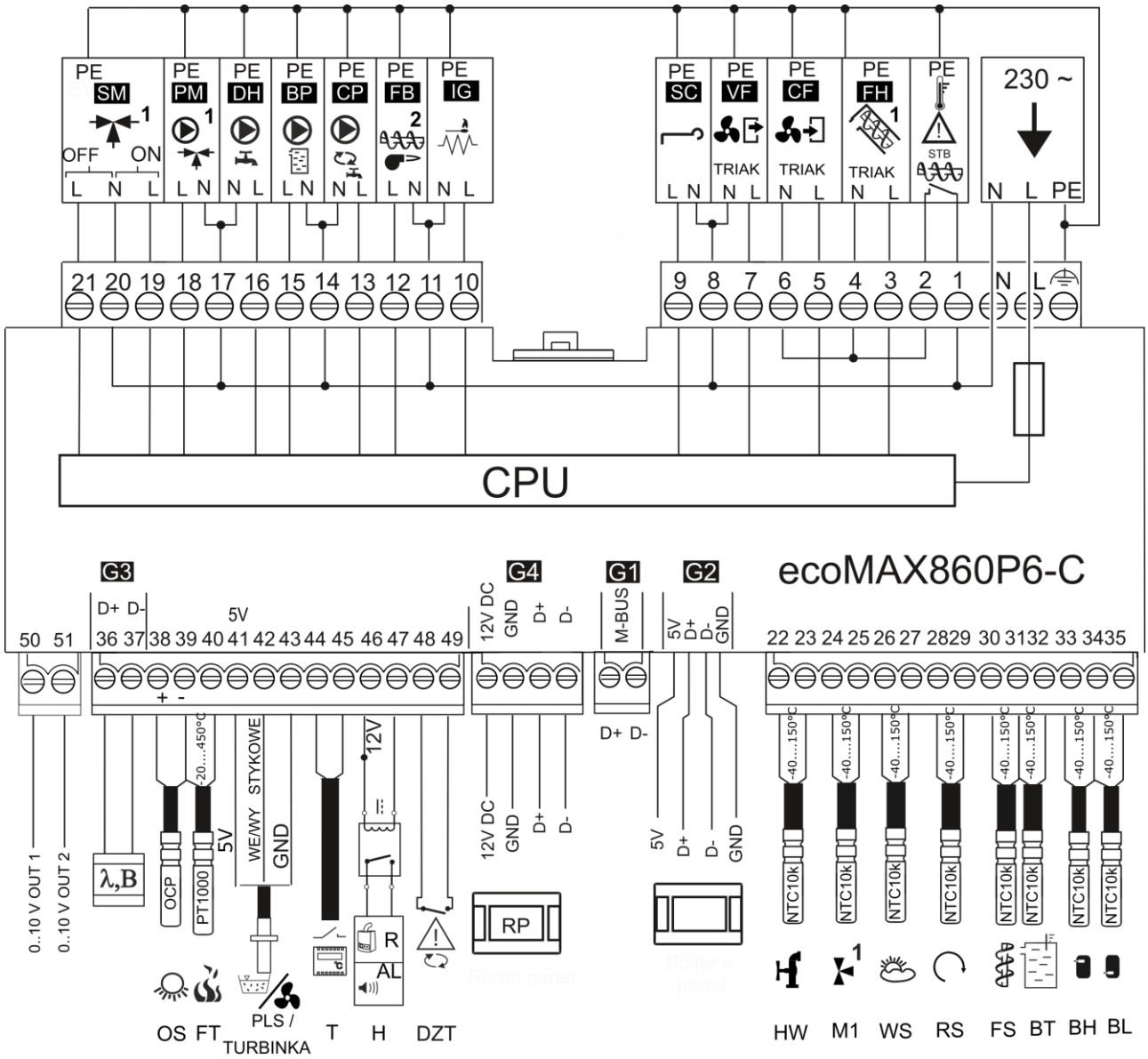


4. Construction

Power supply		230 VAC, 50 Hz
Current consumed by controller		0,04[1] A
Maximum rated current		6 (6) A
Controller protection rating		IP20 (after builit in standard electric box) IP00 (in other cases)
Ambient temperature		T50
Storage temperature		-25...65°C
Relative humidity		5…85%, without steam condensation
Measuring range of temperature sensors CT10/CT2S		0..100°C/0..300°C
Measuring range of temperature sensor CT6-P		-35..+40°C
Accuracy of temperature measurements with sensors CT4 and CT6-P		±2°C
Length of cable sensors		Max. 30m
Terminals	network	screw terminals, wire cross-section area 0.75 mm^2 through 1.5 mm^2, screwing torque 0.4 Nm, insulation removed: 6 mm
	communication	screw terminals, wire cross-section area up to 0.75 mm^2, screwing torque 0.3 Nm, insulation removed: 6 mm
Dimensions		210x115x60 mm
Total weight		1 kg
Standards		PN-EN 60730-2-9 PN-EN 60730-1
Software class		A
Protection class		Suitable to build into Class I devices
Pollution degree		2nd pollution degree acc. to PN-EN 60730-1
Type of controller according to PN-EN 60730-1		Type 2 action
Types of dissconnection (automatic actions)		3x triack (2.Y) 9x relay (2.B)
Other information		• Controller for built-in, on the DIN TS35 rail • The temperature sensors are integrated parts of the control

[1] This is the current consumed by the controller itself. The total current consumption depends on the devices connected to the controller.

5. Electric scheme



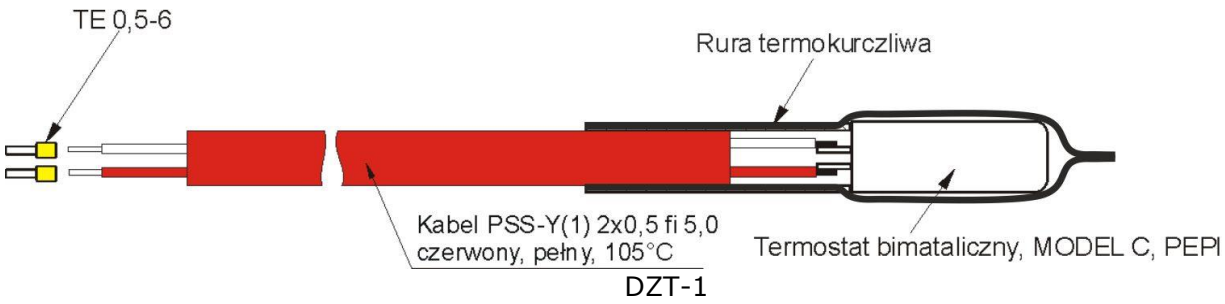
Scheme of electrical connections of the controller: **G1** port for: Lambda module and B module, **BH** – upper buffer temp. sensor type CT10 (NTC10k), **BL** – lower buffer temp. sensor type CT10 (NTC10k), **PLS** - fuel level sensor, **TR** - rotation fan sensor (turbine), **T** – standard room thermostat type NO-NC, **H** – voltage output for **AL** alarm device or **R** reserve boiler, **RELAY** – relay 12 VDC, **DZT** - boiler door or fuel silo door opening sensor, **RP** – room panel with room thermostat feature or radio module, **P** – control panel, **HW** – Hot domestic water temp. sensor type CT10 (NTC10k), **M1** – mixer 1 temp. sensor type CT10 (NTC10k), **WS** – weather temp. sensor type CT6A (PT1000), **RS** - boiler water return temperature sensor type CT10 (NTC10k), **FS** – feeder temp. sensor type CT10 (NTC10k), **OS** – flame optical sensor, **BT** – boiler temp. sensor type CT4, **FT** – exhaust temp. sensor type CT2S (PT1000), **L N PE** - electrical power 230 VAC, **CPU** – controlling, **FU** – main fuse, **STB** – connection to limiter of safety temperature, **FH** – main feeder, **CF** – burner airflow fan, **VF** – exhaust fan, **SC** – rotary burner cleaning motor, **IG** – igniter, **FB** – burner feeder, **CP** – HUW circulation pump, **BP** – boiler pump, **DH** – HUW pump, **PM** – mixer 1 pump, **SM** – mixer 1 servomotor.

1.1.1 Accesories:

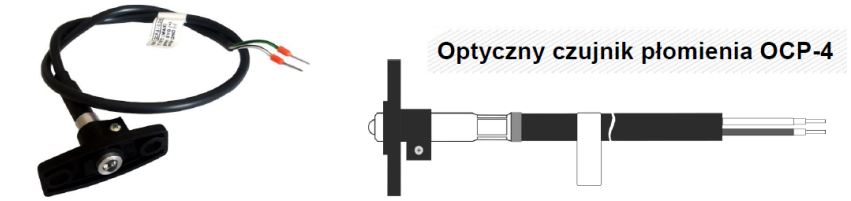
The types of the sensors:
- temperature sensor type CT10,
- outdoor temperature sensor type CT6A,
- optical flame sensor OCP-4,
- additional temperature limiter type DZT-1.

a) temperature sensor type CT10

b) additional temperature limiter



c) optical flame sensor OCP-4



Optyczny czujnik płomienia OCP-4

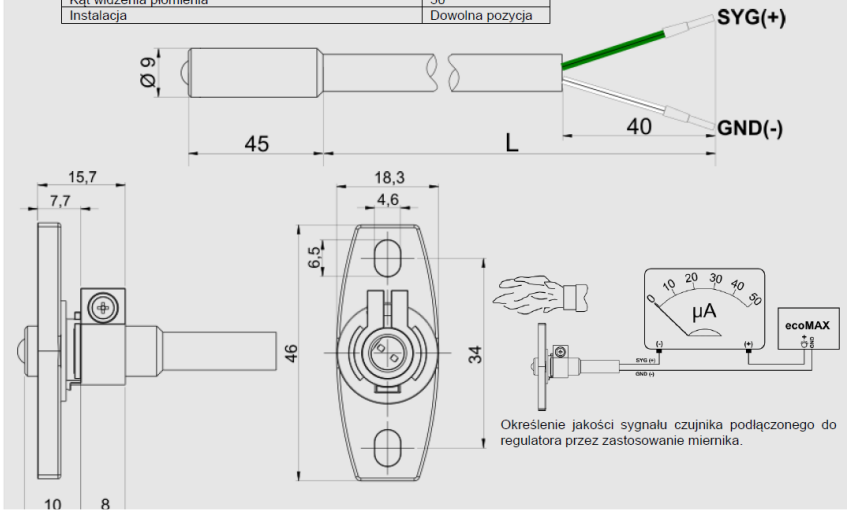
Optyczny czujnik płomienia typu OCP-4 przeznaczony jest do wykrywania obecności płomienia w palniku. Współpracuje z regulatorami typu ecoMAX.

Dane techniczne oraz instalacja

Czujnik instaluje się za pomocą kolnierza montażowego. Podczas podłączenia elektrycznego przewodów sygnałowych czujnika do elektronicznego sterownika palnika należy zachować odpowiednią polaryzację przewodów czujnika: GND (-) – biały przewód, SYG (+) – zielony przewód.

Dane techniczne	
Napięcie zasilające	12 VDC
Stopień ochrony	IP 40
Zakres temperatury pracy	-20...+70ºC
Temperatura przechowywania	-30...+70ºC
Maksymalny prąd wyjściowy	17 µA
Prąd w obwodzie czujnika przy jasności płomienia 0%	≤0,5 µA
Prąd w obwodzie czujnika przy jasności płomienia 100%	≥10 µA
Kąt widzenia płomienia	50º
Instalacja	Dowolna pozycja

Długość przewodu L (mm)
2000
500



Określenie jakości sygnału czujnika podłączonego do regulatora przez zastosowanie miernika.