STAG–L Plus

LAMBDA SENSOR CONTROLLER

INSTALLATION MANUAL

SET COMPONENTS

1. STAG-L Plus - lambda sensor controller
2. Actuator (stepper motor) & base plate
3. A group of wires

TECHNICAL DATA

Operation voltage...12V (+30% - 25%)
Max current consumption……………………………………………………………….0,3 A

Type of throttle position sensor…………………………...................0-5V, 5-0V linear, switch 0-12V, 12- 0V
Lambda sensor type .... 0-1V, 0-5V, 5-0V, 0.8-1.6V standard or resistive
Lambda sensor emulation .... square wave, GND

APPLICATION OF THE CONTROLLER

The STAG-L Plus lambda sensor controller is designed for controlling of operation of engines adapted for LPG and fitted with a lambda sensor.

CONTROLLER OPERATION

The STAG–L Plus controller is switched from LPG electro-valve voltage.
The air/LPG mixture is controlled with an actuator and depends on lambda sensor indications and TPS.
All STAG–L Plus parameters are set by using switches on PCB (Tab.1.)

WIRING DIAGRAM AND INSTALLATION MANUAL

The STAG-L Plus controller should be mounted within the engine chamber in the place, which is not exposed to high temperature, water and fuel.

ATTENTION!
It is recommended to install the controller vertically using its mounting eye and a screw, placing sockets downward to avoid water penetration. Install bundle protecting rubbers carefully to seal the entire housing
Electrical connections should be soldered, carefully insulated and protected from humidity to avoid shorting.
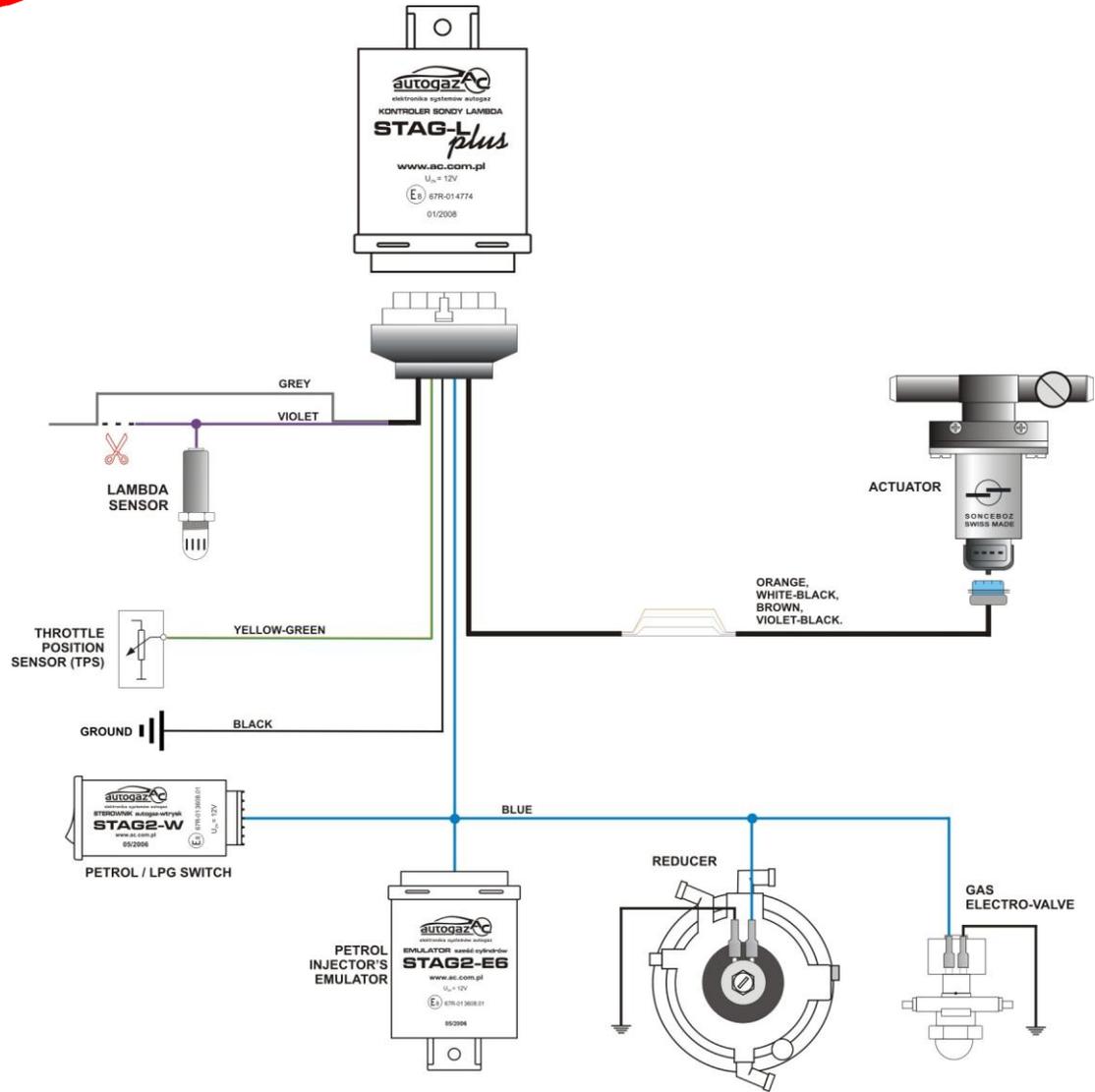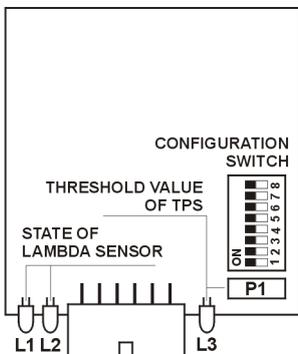
Fig.1. STAG-L Plus wiring diagram.

L1 LED red –**SENSOR RICH**
L2 LED green – **SENSOR WEAK**
L3 LED red – **TPS BELOW THRESHOLD VALUE**
P1 potentiometer is used to set up **THRESHOLD VALUE OF TPS**

Fig.2. Position of configuration and signaling elements of STAG-L Plus.

TPS :	0 – 5V	0 – 12V	5 – 0V	12 - 0V
SW 2	**OFF**	**ON**	**OFF**	**ON**
SW 3	**OFF**	**OFF**	**ON**	**ON**
Simulation :	Wave on*	Shorting to GND		
SW 4	**OFF**	**ON**		
Sensor :	Standard	(+) Res.	(-) Res.	REGULATION OFF **
SW 5	**OFF**	**ON**	**OFF**	**ON**
SW 6	**OFF**	**OFF**	**ON**	**ON**
Type of sensor:	0 – 1V	5 – 0V	0 – 5V	0,8 – 1,6V
SW 7	**OFF**	**ON**	**OFF**	**ON**
SW 8	**OFF**	**OFF**	**ON**	**ON**

* 0.8s/0.8s wave
** REGULATION OFF - actuator at the position of 200 steps

Tab.1. STAG-L Plus programming with a switch.

REDUCER ADJUSTMENT

NOTE! **STAG–L Plus** controller has supply from LPG electro-valve voltage; it means that the controller does not work if the engine is in petrol mode.

1). Set the PETROL/LPG SWITCH **STAG2-W** for *PETROL* mode (Position I), and adjust valve on the actuator for 1/4 opening.
2). Start the engine and wait for proper lambda sensor operation.
3). Check lambda sensor operation for idle and 3000 rpm (sensor indications should be between its upper and lower voltage value).
4). Set the PETROL/LPG SWITCH **STAG2-W** for *AUTO* mode (Position II).
5). Increase rpm to ca. 2000 to switch over to LPG.
6). Set the **P1** THRESHOLD VALUE OF TPS potentiometer so that the **L3** diode turns off during lightly stepping on the TPS.
7). Set the **SW5** and **SW6** switches for ON positions - REGULATION OFF (actuator at the position of 200 steps)
8). Adjust reducer on idle to receive the proper air/LPG mixture (the **L1** – red diode, and **L2** – green diode alternately flashing)
9). Set the lambda sensor balancing at 3000 rpm by using an adjustment valve on the actuator.
10). Set the **SW5** and **SW6** switches for proper valve. (**Tab.1)**

Check for full range of rpm if there is switching between rich and pour mixture.
If it's necessarily repeat the operations from points 7 through 10.

NOTE! If during reducer adjustment it is impossible to obtain sensor balance at high rpm and the mixture is weak, it means that the system reducer- mixer does not work properly, thus before adjustment of electronics some mechanical components must be adjusted.