

## The emulator of catalyst's work SK-02

### Function

The emulator is designed for processing the signal from the oxygen sensor by the algorithm of serviceable catalyst's work. Processed signal has already proffered to the input of the ECU in the form in which it was at the proper catalyst. Thus, the ECU thinks catalyst is working properly. SK-02 emulator works with oxygen sensors with signal 0 ... 1 V (the vast majority).

#### **What gives this device:**

- By reducing the resistance of the exhaust gases and normal fuel correction on the back oxygen sensor it decreases the fuel consumption saving up to 10%;
- Increase power;
- Light of malfunction of the engine will not bother you again, the engine is operating normally;
- You do not need a catalyst, therefore, it will never fail .

### Installation

Installation is made according to the scheme in the picture. The emulator is connected to the oxygen sensor, which is located in the back of catalyst. The powering of emulator is made by heating chain of oxygen sensor through the red wire. Since the oxygen sensor has two heating wires , it should be connected to a wire on which voltage is not lost when removing the plug of the sensor.

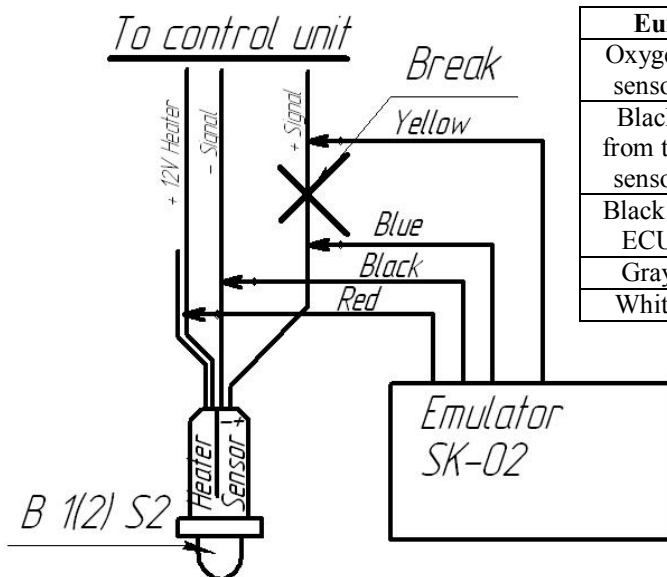
Yellow and blue wires are connected to the signal wire of sensor. The voltage on this wire is in the range from 0.1 to 1 volt.

If 2nd oxygen sensor (after the catalyst) is defective, the signal for the emulator can be taken from 1st oxygen sensor. To do this, the blue wire of the emulator should be connected to the signal wire of the 1st oxygen sensor. This rule works only if the 1st oxygen sensor is made of zirconium( with signal 0 ... 1Volt).

If the output "signal" of sensor does not ring with the mass, then you may need to connect the black wire to the car body (On some vehicles like Peugeot, Citroen, Chrysler, Dodge).

If between the weight of the car (Nissan, Mitsubishi, Chrysler) and gray wire of sensor there is a voltage of more than 0.2 volts - consult by e-mail: sdsmax@gmail.com

Possible colors of the car wires



European car		Japanese car		Function
Oxygen sensor	Emulator	Oxygen sensor	Emulator	
Black from the sensor	Blue	Blue from the sensor	Blue	+ signal
Black to ECU	Yellow	Blue to ECU	Yellow	+ signal
Gray	Black	White	Black	- signal
White	Red	Black	Red	+ heating

**For the proper operation of the device it is required that the oxygen sensors were in good condition, because the emulator function based on their indications.**

**There should be direct access of exhaust gases to oxygen sensor, it should not be obstructed.**

### Problem search( if any)

All measurements are made on a running heated engine.

<b>Problem</b>	<b>Possible cause</b>	<b>Corrective action</b>
The voltage from the emulator more than 1 volt	No contact with the mass	the black wire of the emulator should be connected to signal minus of the sensor's signal Black wire of the emulator should be called with mass.
	Signal minus of the sensor isn't connected with the mass	On some cars (Nissan, Mitsubishi, Chrysler, Dodge) black wire should be connected to the car's body or use emulator SK-07. On some cars like Mitsubishi black wire is connected to the body through the diode.
The output voltage of the emulator preferably about 0 volts at idle (according to diagnosis)	No power	Check the main power on the red wire of the emulator
	No signal from the sensor	You need to check whether the sensor is warming up. On the blue wire of the emulator voltage should vary randomly and respond to pressing the gas pedal. Warm-up time of the sensor should be no more than 5 minutes. No signal from the sensor may occur due to its distance from the exhaust gas or malfunction of the sensor itself. If the 2nd sensor is defective, and the 1st one has a signal 0 ... 1 V - connect the blue wire of the emulator to the signal of the first sensor.
	Problem with emulator	Consult your dealer for replacement of the emulator.
	Problems with gas balloon car equipment	Check the operation of the emulator on gasoline. If gasoline emulator is working properly - make installation of gas balloon car equipment
	Problems with motor control system	If the voltage at the front and back sensor is approximately 0 volts - check for air leaks in the intake manifold, pressure in the fuel rail, injectors, etc. Pay attention to the fuel

		correction ECU.
Voltage in the emulator at idle is about 0 volts or about 0.85 volts and does not range , respond to the strong pressing on the gas pedal.	Problems with the front sensor	Check the front sensor
	Problems with other motor control systems	Diagnose.
	Adapts	On some cars, it may be normal immediately after the installation of the emulator. After about 5 km of the trip ECU adapts to new parameters and should function normally.

If all of the above is correct, check the hornblende. Measure voltage or look for diagnosis between black and yellow wire. With the engine running at idle, the voltage should range around 0.65 .... 0,85V, occasionally may fall to 0 V. With a sharp and strong pressing and releasing of the gas pedal, the output voltage of the emulator should drop to 0 volts after 1 ... 2 seconds after the cut-off.

### **Warranty**

The manufacturer guarantees the efficiency of products if the rules of operation are followed properly, which are written in detail in the instruction manual.

Warranty period - 2 years from the date of implementation.

During the warranty period the owner, in case of failure of the product is eligible for a free repair.

During the warranty period, repairs are accomplished at the expense of the owner if he exploits the optimizer not in accordance with the instruction manual, or does not comply with the manufacturer's recommendations.

The system is removed from the warranty in the following cases:

- If there is mechanical damage;

Emulator SK-02 meets necessary technical conditions and is considered suitable for use.

Release date \_\_\_\_\_ 2014

Vendor \_\_\_\_\_ [Seal]

Brand (in which the equipment is installed): \_\_\_\_\_

Installed by: \_\_\_\_\_ / \_\_\_\_\_ /

Installation Date: \_\_\_\_\_