Variator Microluch TOY, sHmel.
Installation on cars with ind crankshaft sensor.

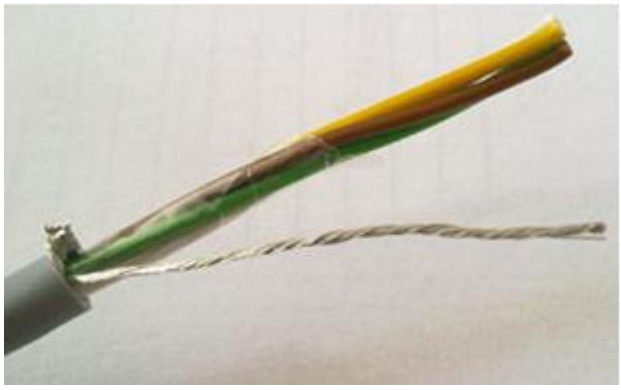
Before installing the variator, determine the polarity of the crankshaft sensor wires with an oscilloscope, and **disconnect the terminal from the battery during installation.**

Define in car list according to which installation scheme.

Place of insertion into the car wiring.

If the crankshaft sensor cable is shielded, cut into the wiring at any convenient location. Connect the shield of the variator cable to the shield of the transducer cable.

If the crankshaft sensor wires are not shielded, cut into the wiring as close to the sensor as possible. Connect the screen of the variator cable to the vehicle body or engine.



Connect variator to the crankshaft sensor.

Connect the wires to the crankshaft sensor according to the diagram.

Connect power supply of the variator (red wire).

Connect the red wire to the plus of the battery, using a 1 ... 5 A fuse, in case of rubbing the wire.
The variator consumes a small current 22 mA 3Dhall and 42 mA toy, sHmel, but this fuse should be removed if the car is not planned to be used for more than a month.

Connect common wire (black).

Connect the common wire of the variator to the common wire of the crankshaft or camshaft sensor according to the diagram.

Connect gas-gasoline control (blue)

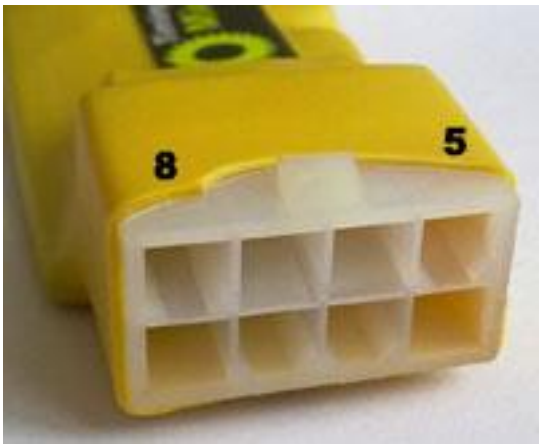
connect the blue wire to that wire of the solenoid valve, on which the voltage changes when the gas is turned on.

Connect yellow wire.

To work with a 3D graph, connect the yellow wire to the MAP sensor vacuum signal. For working with 2D graphics, the yellow wire can be omitted.

Configuration.

Variators are configured in accordance with the setup instructions using the programs that are in the "Variators" archive at http://www.microluch.com/auto.
Microvar.exe setup program is used to configure the variator. A standard USB-UART interface cable is used for communication.

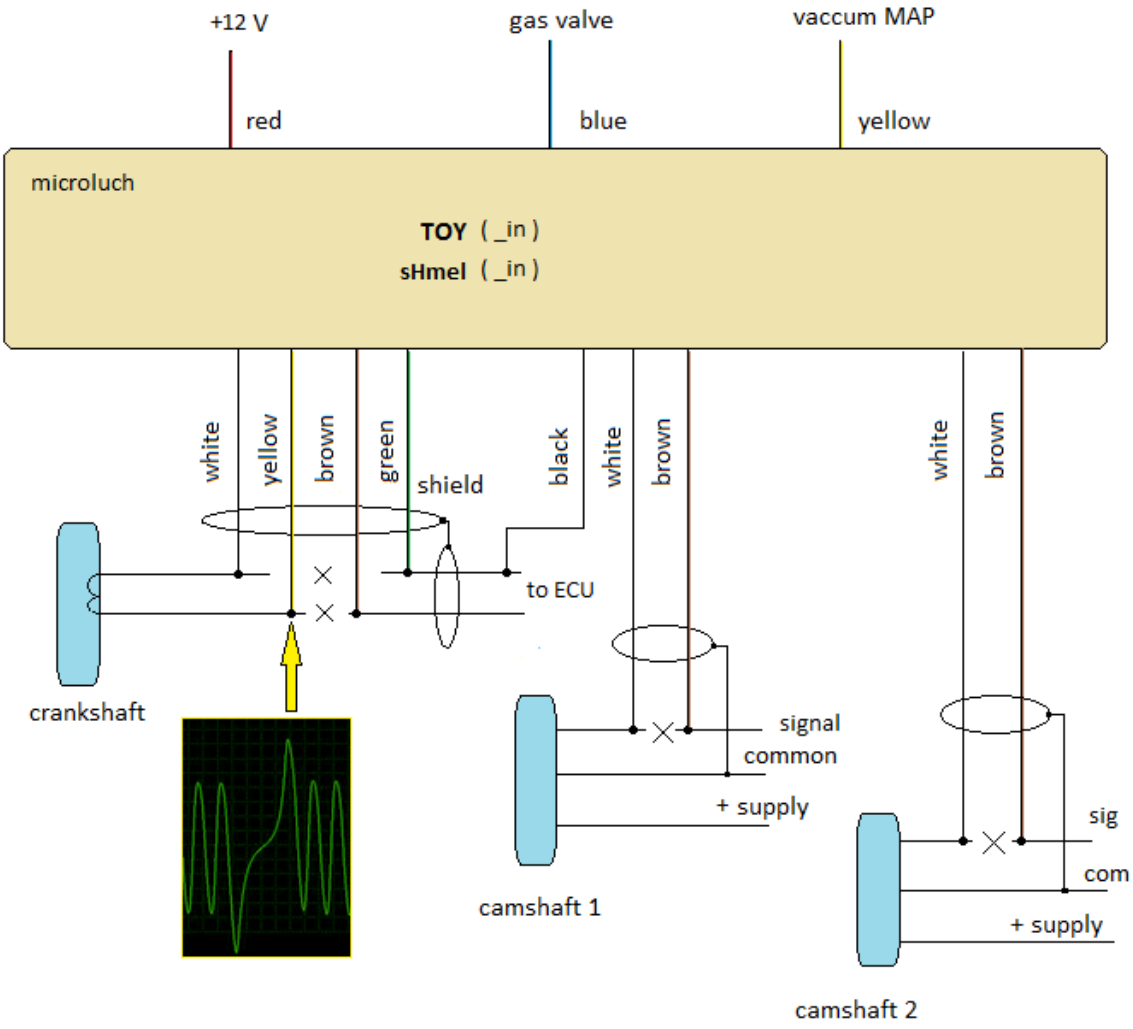


interface connector:

8 - transmission from the variator at levels 0-5V.
7 - plus 12V from the variator for the interface
6 - common
5 - reception for the variator at levels 0-5V.

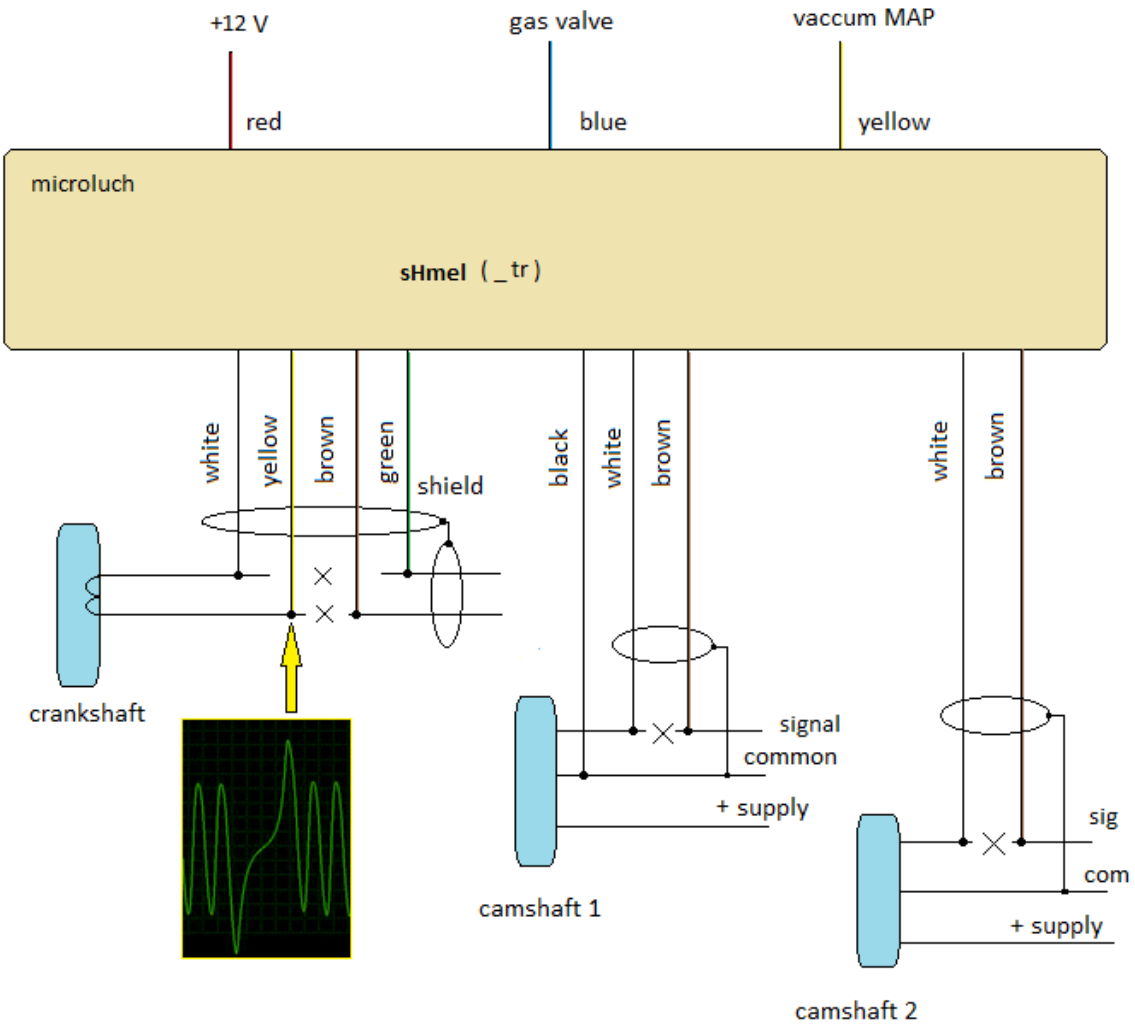
Connection diagram of the TOY and sHmel variator (without output transformator).

To the ind crankshaft sensor and two camshaft sensors in the (_in) program variant.



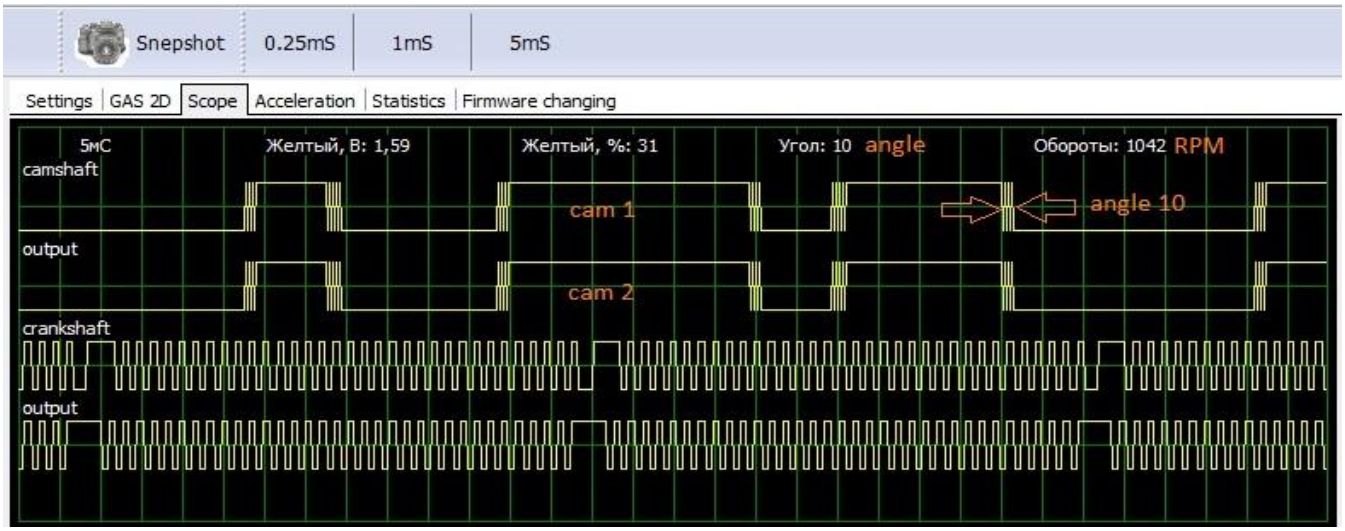
Connection diagram of the sHmel variator with output transformator.

To the ind crankshaft sensor and two camshaft sensors in the (_tr) program variant.



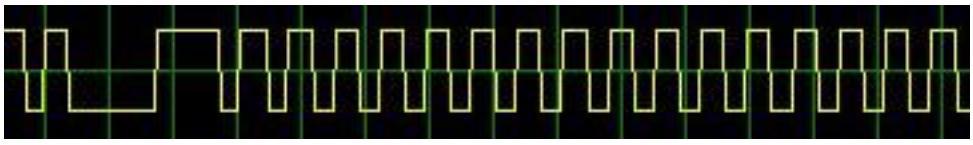
Scope.

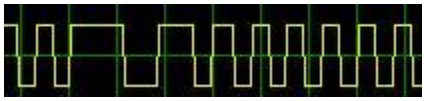
The waveform is used to determine the correct polarity of the connection to the inductive sensor and to determine the type of program.
The oscilloscope captures the signal at the moment the sweep button is pressed: 0.25 or 1 or 5 ms.
The input and output of the crankshaft signals is displayed on separate lines.
The input and output of the camshaft signals are displayed on the same line.
To save a picture in the computer's memory - press the "Snapshot" button - a picture with a name corresponding to the time of pressing will be saved in the Pic folder of the Variators folder.

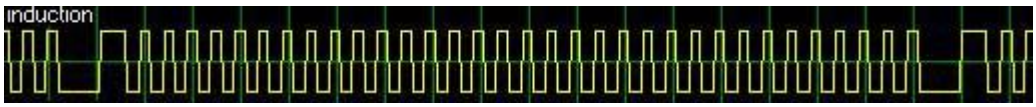


Check with an oscilloscope in the software, that the polarity of the connection is correct. if not, change all 4 wires connecting to the sensor.

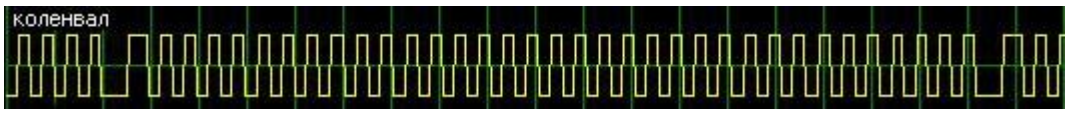
Examples of correct polarity of connection and correspondence to programs.


58 imp. Program **_602**

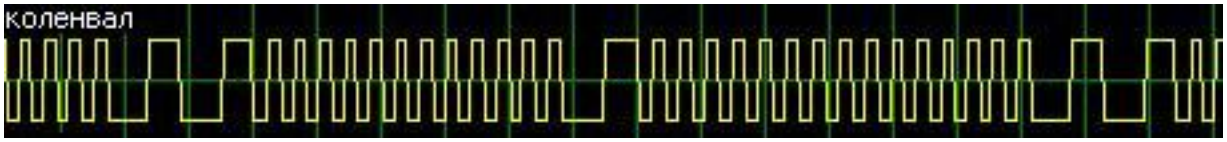

58 imp. Program **_renault**



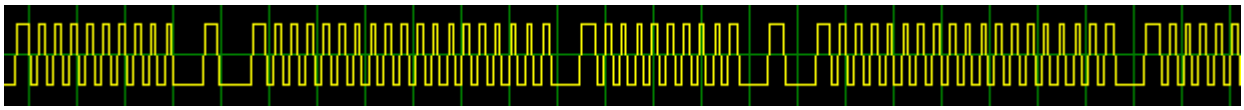
Toyota, Lexus, 36-2, 34 imp. Program **_toyota**, **_lexus**



Ford, 36-1, 35 imp. Program **_ford**



Suzuki, Subaru, 4 cyl, Program **_subaru4**



Subaru, 6 cyl, Program **_subaru6**

Signaling:

The LED is inside and is visible from the side of the interface connector.

- The variator LED is on - the variator is in operation, the advance is on.
- The variator LED flashes slowly - the variator is in operation, the advance is turned off.
- Blinks frequently - an input signal error has been detected due to interference or incorrect polarity, or the variator program does not match the vehicle.
- The variator LED does not light - there is no power or the variator is faulty.

Jamper.

In case of problems along the way, disconnect the variator and turn on the dummy plug with jumpers instead.

All new firmware and a list of cars on the manufacturer's website: www.microluch.com