# Variator Microluch TOY, sHmel, 3Dhall.
Installation on cars with hall crankshaft sensor.

Connect variator to the crankshaft sensor.

Before installing the variator, determine the signal wire of the crankshaft hall sensor with an oscilloscope, and **disconnect the terminal from the battery during installation**. Then cut the vehicle wiring in the selected place and connect in accordance with the diagram.

Connect the screened cable shield to the common wire of the crankshaft sensor.
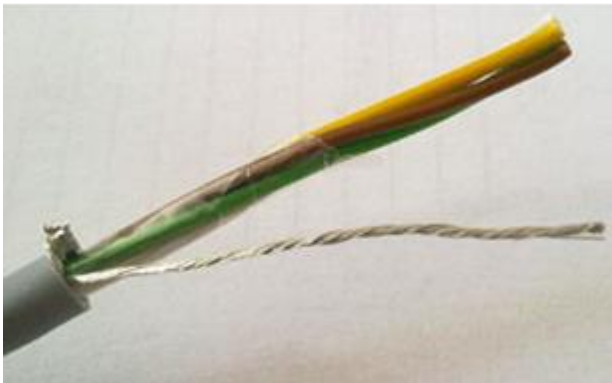
Connect power supply of the variator (red wire).

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 hall sensor.

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.

The 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.
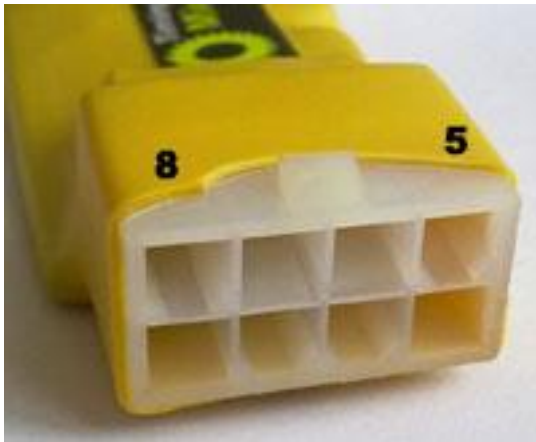
interface connector:

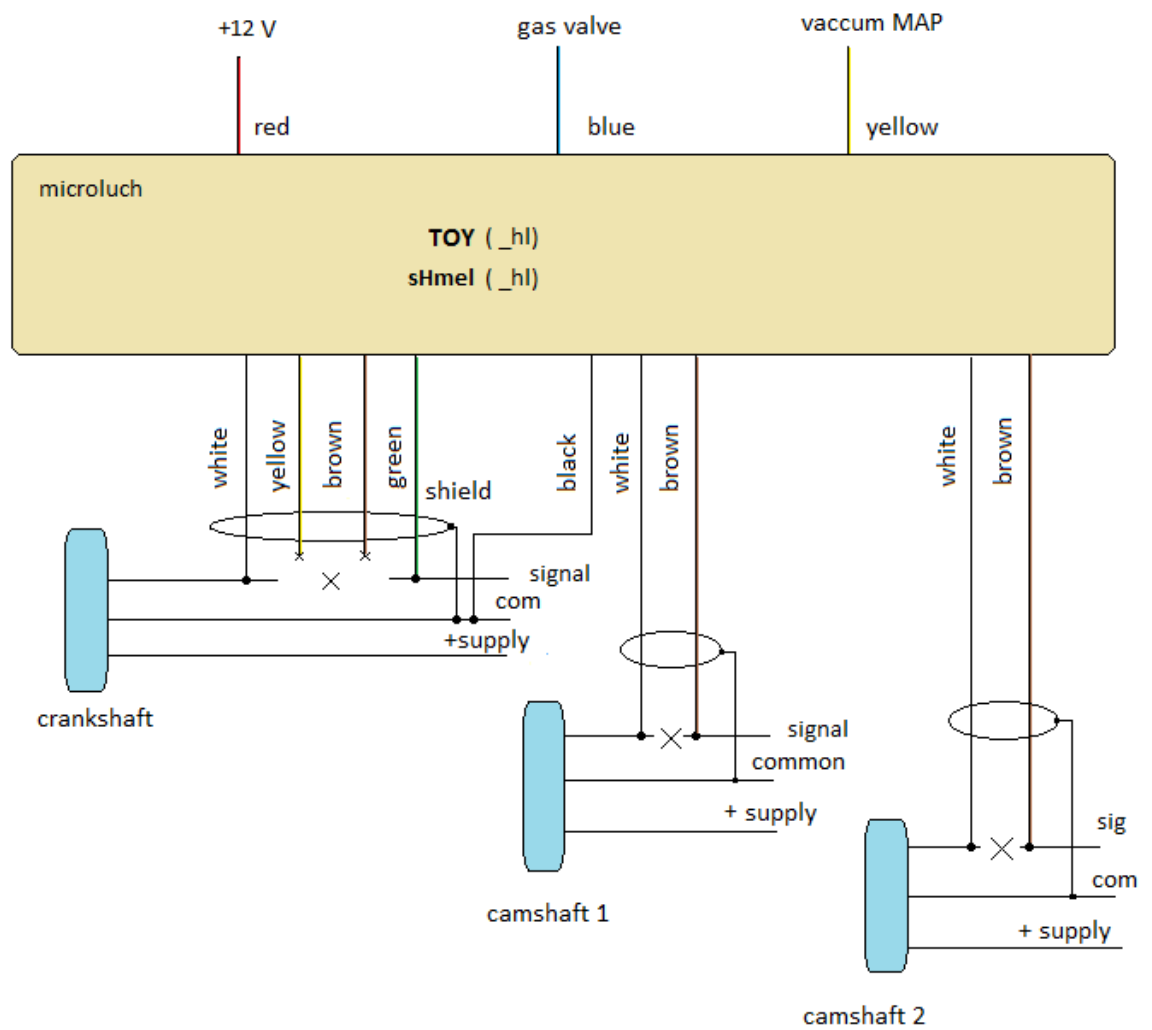8 - transmission from the variator at levels 0-5V.
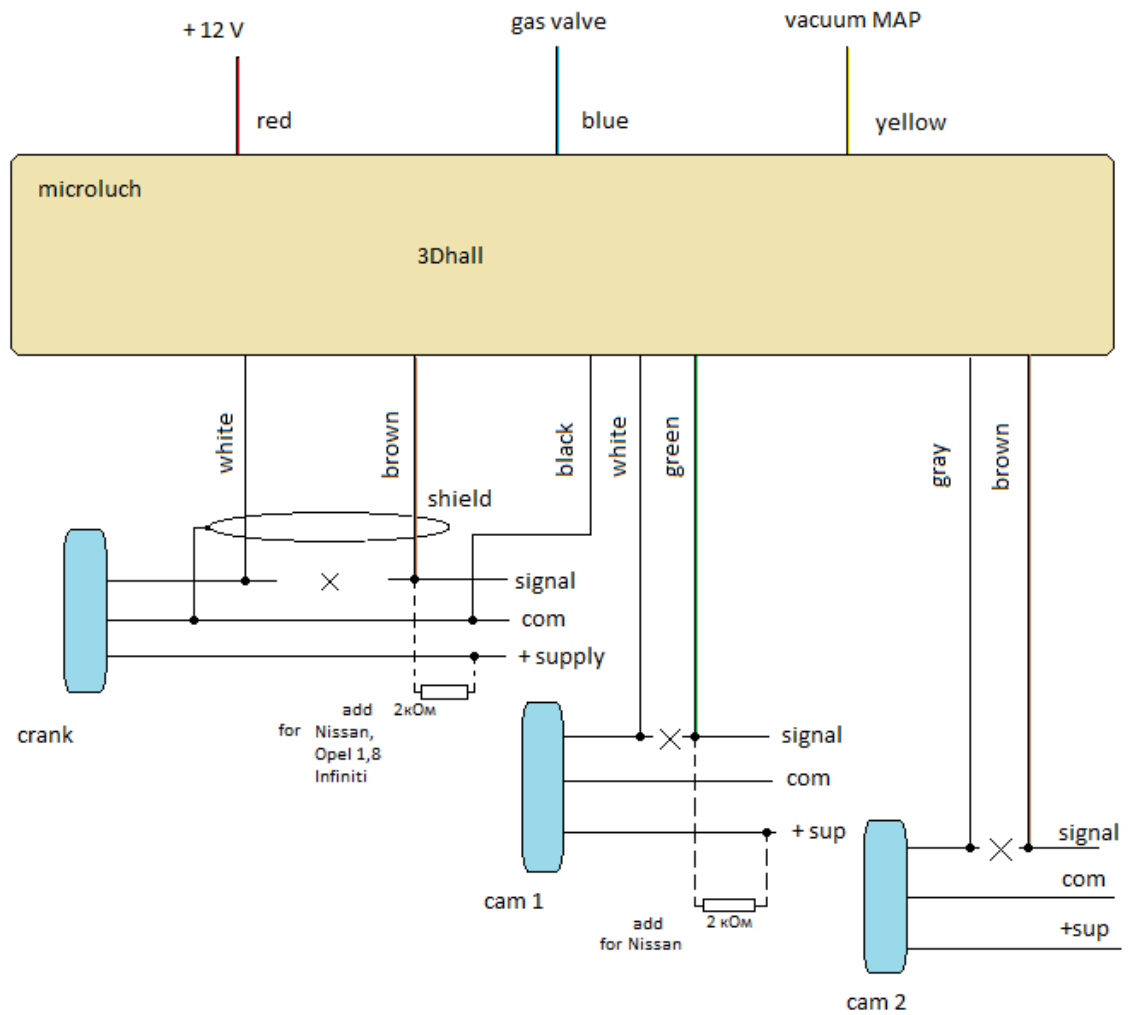7 - plus 12V from the variator for the interface
6 - common
5 - reception for the variator at levels 0-5V.

Connection diagram of the TOY and sHmel variator.

To the hall crankshaft sensor and two camshaft sensors in the (_hl) program variant.

+12 V   gas valve   vaccum MAP

red   blue   yellow

microluch

TOY (_hl)
sHmel (_hl)

white   yellow   brown   green   black   white   brown   white   brown

shield

signal
com
+supply

crankshaft

signal
common

+ supply

camshaft 1

sig

com

+ supply

camshaft 2

Connection diagram of the 3Dhall variator.

	+ 12 V		gas valve		vacuum MAP
	red		blue		yellow

microluch

3Dhall

white — brown — shield — black — white — green — gray — brown

crank

signal
com
+ supply

add 2кОм
for Nissan,
Opel 1,8
Infiniti

cam 1

signal
com
+ sup

add 2 кОм
for Nissan

cam 2

signal
com
+sup

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.
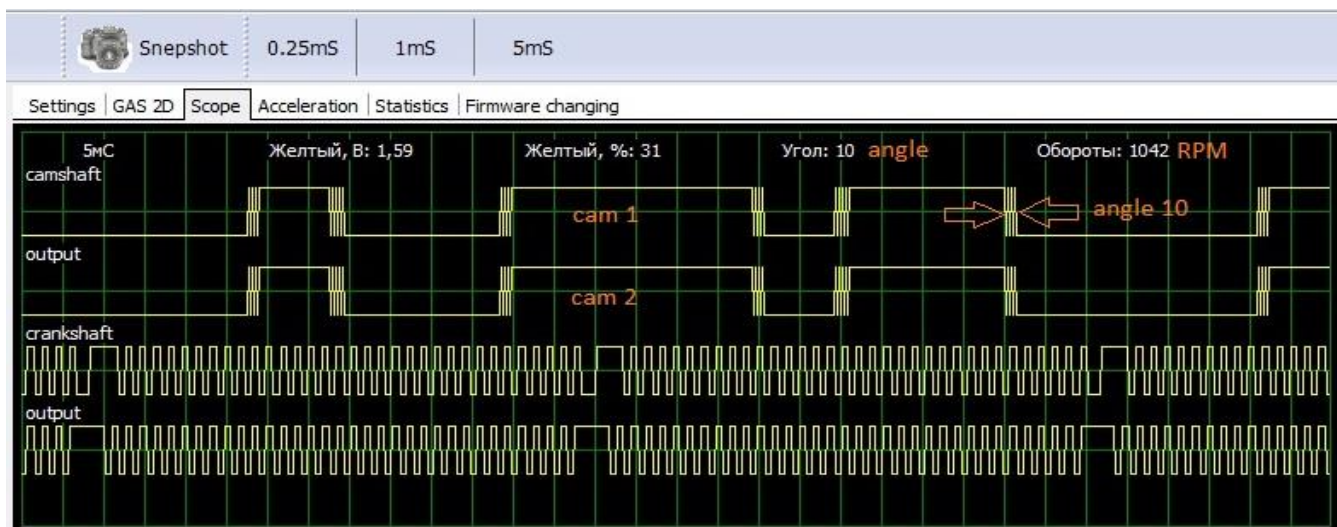
Signaling:

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