WB1

WB1 is a microprocessor-based controller designed for processing of signal from the wideband lambda sensor Bosch LSU4.9.
The controller converts the current signal from the lambda sensor to analog voltage signal with range approx. 0-5 V. Between individual controllers are slight differences in this range. For ordinary work with the controller, it is sufficient to use the range of 0-5 V. For exact configuration can be used calibration curve. The calibration curve for individual controller is writen on the sticker which is placed on the controller body. The controller also regulates the heating of lambda sensor according to recommendations of sensor manufacturer.
The device is encapsulated in plastic box. The connection of the sensor is realized by original connector 1J0973713 and can not be exchanged. The power supply and output is realized through a faston connector 4x6,3 mm. Counterpart of this connector is included.

Parameters of controller.

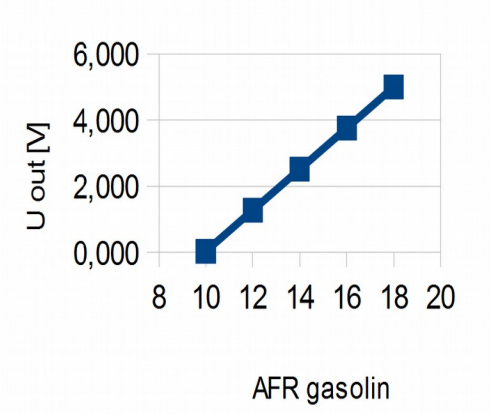
Supply voltage: 12 – 15 V
Power consumption: up to13 W
Output voltage 0-5 V for λ from 0.68 to 1.224 (gasoline AFR 10-18)
Output current up to 10 mA (source)
Slew rate of the output voltage: 20 ms

Description of function.

After applying power the converter immediately sets the output voltage to the value corresponding to λ=1 (14.705 AFR gasoline) that is about 2.5 V.
This value is on output held until time as the sensor is properly warm up and calibrated. This process usually takes 30-40 seconds.
After this occurs, the output circuit is redirected to the actual measured value. In normal operation on the chip of lambda sensor it is kept a constant temperature of 780 °C.
The power wires are red (+12 V) and dark blue (power ground). Output wires are orange (signal) and light blue (signal ground). The wires power ground and signal ground can not be confused. The input circuit of the follow-up displays device should have an input resistance min. 10 kOhm to signal ground. On body of the controller is sticker with the calibration curve that specifies the range of the output.

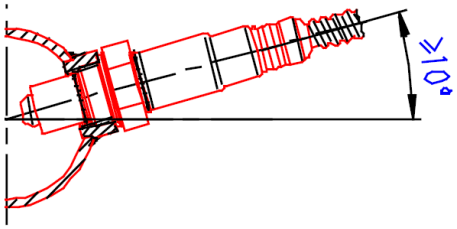
Example of calibration curve (sticker on the controller).

λ	AFR gasolin	Voltage[V]	Voltage[mV]
0,6800	10	0,033	33
0,8160	12	1,275	1275
0,9521	14	2,517	2517
1,0881	16	3,758	3758
1,2241	18	5,000	5000



Installation of lambda sensor.

Lambda sensor must be (in the exhaust pipe) located so that inside of the sensor could not condense water. A minimum slope specified by the manufacturer is 10 ° from the horizontal axis - see image below. It is good to place the the converter in a dry place with a temperature up to 60 °C. The converter does not require special maintenance.



Example of connection with units Ignijet.