

NB O2 Sensor

-Narrow Band Oxygen sensor

Technical Spec

ECOTRONS LLC

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Note: If you are not sure about any specific details, please contact us at <u>info@ecotrons.com</u>.

Product: NB O2 Sensor

Part#: ENOW18

Note: All data given in this document are nominal values and might be

subject of change at any time

Index	Page	Revision	Date	Note
1		First Edition	1.3.2014	V1.1
2		Second Edition	4.11.2014	V1.2
3		Third Edition	6.20.2014	V1.3
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General Description

Oxygen sensor is installed in the exhaust gas pile to measure the oxygen content and find out whether the combustion of gasoline and air is stoichiometric A/F ratio.

And in this status the catalytic converter has maximum conversion efficiency on HC, CO and NOx in the exhaust gas.

When the inside and outside of the sensor element has different oxygen concentration, the oxygen sensor can detective it and transform to voltage signal.

1 Characteristic

1.1 Sensor Picture





1.2 Pin-out definition



From left to right:

2

Pin1: Heater circuit wire	(White)
Pin2: Heater circuit wire	(White)
Pin3: Ground wire	(Gray)
Pin4: Signal output wire	(Black)

1.3 Resistance between wires

Resistance between Pin1 and Pin2	8-11 Ω
Resistance between Pin1 and Pin3	+ ∞ Ω
Resistance between Pin1 and Pin4	+ $\infty \Omega$
Resistance between Pin2 and Pin3	+ $\infty \Omega$
Resistance between Pin2 and Pin4	+ $\infty \Omega$
Resistance between Pin3 and Pin4	+ $\infty \Omega$



1.4 Main technical parameters

Tightening torque	40Nm-60Nm				
Protective tube	Double protective tube				
Working temperature					
Ceramic sensor element (exhaust gas) <=930 °C					
Hexagon of the sensor housing <=570 °C					
Cable grommet	<=250 °C				
Connector	<=120 °C				
Heater power	7W				
Life time	>160000m				
Weight	96g				

1.5 Nominal characteristic curve plotted





V-AFR characteristics

2 Applications

2.1 Typical Applications

This NB O2 sensor is normally used to measure the oxygen content and the λ -value of exhaust gases in automotive engines. It should be placed in the exhaust pipe.

Usually, it works with Ecotrons EFI system, the ECU will work in closed-loop control based on the NB O2 sensor signal.

2.2 Electrical application notes

Connection with Ecotrons EFI system:





Pin-out definition of ECU harness NB O2 connector:



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From left to right:

Pin1: Signal output wire	(Gray/Black)	
Pin2: Ground wire	(Green)	
Pin3: Heater circuit wire +	(Blue)	
Pin4: Heater circuit wire -	(Blue/Yellow)	



3 Installation instructions

If you are going to install the O2 sensor, please follow the below steps to install the O2 sensor:



O2 sensor installation for vertical engines (6-10" downstream of exhaust port)





O2 sensor installation for horizontal engines (> 10 degree tilt angle)

1) Find the correct the location to install the O2 sensor. It needs to be close to the exhaust port, but not too close (6-10" away). Rule of thumb: the O2 sensor can take the advantage of the exhaust heat, so it does not have to be heated all by itself. But you don't want it to be heated too much, because the good temperature range is 300 degree to 900 degree.

2) The sensor needs to be installed with a tilt angle, meaning <u>the sensor head</u> <u>must point down with certain degree</u>, see the picture below. Otherwise the condensation could damage the sensor.





3) Drill a hole on the exhaust pipe. Weld the O2 sensor bung (provided) on the hole. Make sure the sensor head can be fully exposed to the exhaust gas; yet NOT to block the exhaust pipe.

4) Install the sensor in the bung. Connect the O2 sensor cable.

Installation notice: Clean fluid, oily liquids or volatile solids are forbid to use on the plug of oxygen sensor. The size of hexagon is 22-0.33

The tightening torque of oxygen sensor is 40-60Nm.

4 Sensor diagnostics

With an Ecotrons EFI system, you can use EcoCAL software to do quick diagnosis on the NB O2 sensor.

Here is the link to get the EcoCAL user Manual .

http://www.ecotrons.com/support/

EcoCAL screen, by default, shall show a group of the gauges, you can add the O2S gauge in the gauges. You can read the gauge to determine whether it makes sense or not. For example, before you start the engine the O2S should read as 450mV.

When the O2 sensor is heated completely after engine runs 2-3 minutes, the Gauge will show the real signal of NB O2 sensor.

If the NB O2 sensor doesn't work normally, please use a multi-meter to measure the resistance between the two heat circuit wires, if the resistance is not range from 8 to 110hm, it means there is something wrong with the NB O2 sensor.



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Suggestions on environment protection:

In order to protect the environment, please hand the replaced old parts to a professional service station for recycling, or a professional reject disposal agency. Thank you for your cooperation.



5 Appendixes: Mechanical CAD Drawing



