

OXYGEN SENSORS

Purpose and Function.

Oxygen Sensors are used to detect the amount of excess oxygen in the exhaust gas after combustion to indicate the relative richness or leanness of mixture composition.

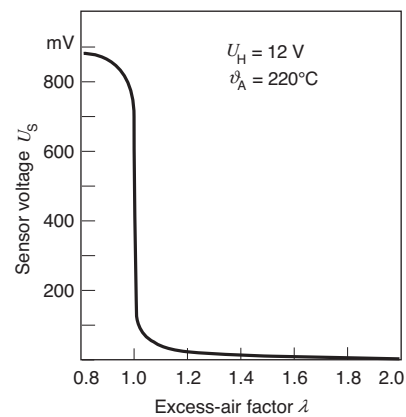
The oxygen sensor contains two porous platinum electrodes with a ceramic electrolyte between them. It compares exhaust gas oxygen levels to atmospheric oxygen and produces a voltage in relation to this. The voltage produced by the oxygen sensor will be typically as small as 100 mV [lean] up to a maximum of 900 mV [rich]. An active oxygen sensor would cycle between these two points as the engine management system drives the mixture rich and lean to achieve an average sensor voltage of ~465mV. This would represent the mixture ratio of 14.7:1.

This type of operation is normal for a "narrow band" style of sensor; these are used for the majority of standard vehicle applications.

Bosch also produces "lean" sensors [type code LSM11] for testing applications, these provided a broader operational range by extending the lean scale, a detailed curve can be seen below. These sensors are not recommended for standard vehicle use.

The introduction of "Planar" manufacturing technology has allowed Bosch to produce a "wide band" oxygen sensor that has an extended mixture operating range [type code LSU4]. These sensors operate on a completely different principle to the standard "thimble" type sensor manufactured by Bosch. The operation of this type of sensor requires various software controls to manage oxygen cell current requirements, signal interpretation and heater management. Bosch produces these sensors for use with our engine management systems that are developed in conjunction with individual vehicle manufacturers.

It should be noted that these sensors require a complex heater management system in order to maintain sensor accuracy across various operating conditions. Sensors not operated in conjunction with an appropriate heater management strategy may be damaged due to thermal stress. Consultation with the engine management system provider should take place prior to use of these sensors to ensure they are supported.



OXYGEN SENSOR TECHNICAL DATA

Part Number	Measurement Range [Lambda]	Type Code	Number of Wires	Heater Power [W]	Mounting Thread Size [mm]	Cable Length [mm]	Connector Type
0 258 001 027	> 1	LS	1	NA	M18 x 1.5	40	Bullet Terminal
0 258 003 957	>1	LSH 15	3	11	M18 x 1.5	1150	9 122 067 011
0 258 003 074	>1	LSH 6	4	11	M18 x 1.5	200	9 122 067 011 & 1 287 013 002
0 258 104 002	0.8 -1.6	LSM 11	4	16	M18 x 1.5	2500	9 122 067 011 & 1 287 013 002
0 258 104 004	0.8 -1.6	LSM 11	4	16	M18 x 1.5	650	9 122 067 011 & 1 287 013 002
0 258 006 065	0.7 - infinity	LSU 4.2	6 (5 used)	---	M18 x 1.5	600	D 261 205 138
0 258 006 066	0.7 - infinity	LSU 4.2	6 (5 used)	---	M18 x 1.5	460	D 261 205 138