

Wideband sensor

The lambda sensor is an instrument used in petrol, diesel and gas engines for controlling exhaust emissions. It measures the residual oxygen content of the exhaust gas and ensures an optimum mixture composition. One type of lambda sensor is the wideband sensor.

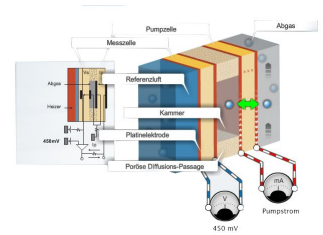
Function

and detects the mixture composition by way of the residual oxygen content of the exhaust gas. The control unit recognises the mixture composition (lean or rich) from the lambda sensor voltage and regulates the injected fuel quantity so as to ensure an optimum mixture composition. If the mixture is rich (lambda less than 1), the control unit reduces the amount of fuel in the mixture ratio. _____



Mode of operation

The lambda sensor is fitted in the exhaust pipe upstream or downstream of the catalytic converter



measurement cell the oxygen content of the exhaust gas flow is compared to a set value of 450 mV. In the event of a deviation in this value, use is made of a pump current to pump oxygen ions into or out of the measurement chamber until a voltage value of 450 mV is obtained between the electrode on the reference air side and the measurement chamber electrode. This pump current is the measurement quantity which almost linearly describes the exact lambda value of the mixture. With a stoichiometric mixture it is equal to zero, as the oxygen partial pressure in the measurement chamber corresponds to the set value of 450 mV.

Protection of the environment

Lambda sensors are indispensable for the efficient conversion of exhaust gases. More modern vehicles often employ two lambda sensors.

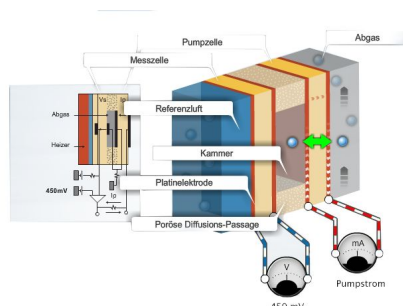
Lambda sensors are subject to extreme loads. A properly functioning lambda sensor is a prerequisite for reliable engine operation and thus for the following three factors:

- Low fuel consumption
- Low pollutant emissions
- Correct emission values

Wideband sensors have two cells: A measurement cell and a pump cell. In the

Prompt replacement of a lambda sensor can not only prevent expensive catalytic converter damage, it also ensures better vehicle performance.

Bilder



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