

NOx SENSOR

ELECTRONICS FOR THE EXHAUST SYSTEM



PART | SERVICE | SOLUTION



COMPACT KNOWLEDGE



The worldwide tightening of emission limits for passenger cars and commercial vehicles requires not only continuous improvement in internal combustion engines, but also increasingly powerful exhaust aftertreatment systems.



In order to minimize the high level of pollution caused by nitrogen oxides (NOx), today's vehicles use what is known as the SCR system (selective catalytic reduction). This involves injecting a reducing agent (AdBlue®) to significantly reduce the level of nitrogen oxides in the exhaust gas.

NOx sensors are responsible for controlling and monitoring these processes. The measurements taken by the NOx sensor provide the engine control unit with the data it needs to inject the reducing agent. The NOx value is given in ppm (parts per million).

These measurements are taken directly in the exhaust gas stream. The measured data is converted from milliamperes into a CAN bus signal in the NOx sensor's control unit, which is then sent to the SCR or engine control unit.



Replacement of NOx sensors

If possible, the tests should always be carried out using an error code with a suitable OBD diagnostic device.

If there are no obvious causes of failure on the NOx sensor, the periphery around the sensor should be examined, such as obstruction of the exhaust gas flow due to damaged or clogged filter elements. Leaks in the exhaust system (false air) affect the measurement results, thereby distorting the measurement result.



Visual inspection of NOx sensors

Control box

- Check contacts for corrosion
- Check housing for water ingress

Wiring

- Check for chafing/kinking
- Feel the cable harness (melting of individual cables due to thermal overload)
- Martens bite marks

Sensor unit

- Check for soot/contamination
- Check for tarnishing
- Check threads for damage (false air)



SERVICE & QUALITY

Spare part identification

Due to software adjustments made by vehicle manufacturers, the correct spare part identification of a NOx sensor is only possible via the vehicle identification number (VIN). When updating the engine control unit, new software codes for NOx sensors are sometimes also stored. When replacing a defective sensor, the current software must always be installed on the new NOx sensor.

The most up to date spare part number can only be reliably determined using the chassis number, taking into account the replacement chains. The OE number determined can then be converted.

The screenshot displays the partslink24 software interface. On the left, there is a search bar and a list of search results for NOx sensors. The main area shows a detailed view of a selected part, including a technical drawing of the sensor and its installation location in the exhaust system. On the right, there is a QR code and the website address www.gebe-shop.de.

GEBE provides training

The complexity of the NOx sensor requires specialist knowledge. Based on common sources of error, a targeted training program has been developed for technicians, product manager, and the sales teams with the following focus areas:

- NOx in the exhaust system
- Design and function of the NOx sensor
- Causes of failure / error patterns
- Installation instructions
- Reliable spare parts identification using partslink24 examples
- Real cross section models of defective NOx sensors
- NOx sensor tester

You can find our planned training courses here:

<https://www.ika-germany.de/en/workshops-round-tables-trainings/>

GEBE testing center

Through our GEBE test centers, we have access to a network of experienced automotive mechanics and mechatronics engineers. This provides our technical department and product management with invaluable feedback from the field. In this way, we ensure that GEBE products perform well on the road right from the development stage.

GEBE laboratory

In our own laboratory in Königswinter, we simulate environmental influences, interactions in the exhaust system, and extensive runtime tests. This ensures the high quality and operational readiness of our GEBE products. In addition to permanent quality control, we lay the foundations for our rapid response times in new product developments and software mapping in the event of required updates.

CONTACT we are happy to assist you!

- Expert support in correctly identifying spare parts
- Technical support for problems relating to NOx sensors



Andreas Berntgen

a.berntgen@ika-germany.de

+49 (0) 160 30 46 318



David Müßener

d.muessener@ika-germany.de

+49 (0) 2244 918 42 - 18



David Moll

d.moll@ika-germany.de

+49 (0) 2244 918 42 - 45



IKA Industrie- und
Kraftfahrzeugausrüstung GmbH

Humboldtstraße 8
D-53639 Königswinter
www.ika-germany.de
sales@ika-germany.de
+49 (0) 2244 918 42 - 0

Geschäftsführer: Dr. R.J. Schoenen |
H. Benninger | S. Hoff
Sitz der Gesellschaft: Königswinter
Amtsgericht: Siegburg HR B 2377
Ust-IdNr.: DE123373218