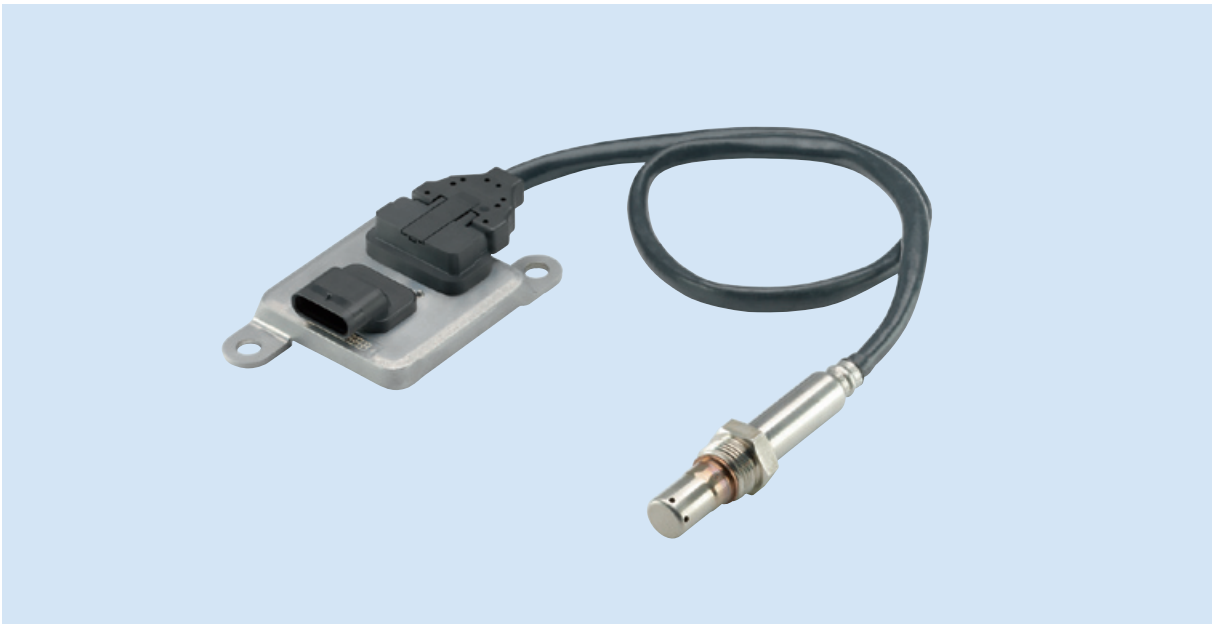
UniNO_x-Sensor



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Our innovative sensors are helping customers meet increasing global performance requirements and emissions regulations.

A technology that will support car manufacturers to meet the challenge to fulfill ever more stringent exhaust gas legislation and to reduce fuel consumption at the same time is the UniNO_x-Sensor.

We and Japanese NGK Insulators, combining our specific know-how on the fields of electronics (Continental) and sensor elements (NGK Insulators), jointly developed this sensor.

Product applications

The VDO / NGK UniNO_x-Sensor is a stand-alone, multi-functional sensor, which measures both the NO_x-concen tration and the air/fuel-ratio lambda (λ) in the exhaust gas. In order to comply with the forthcoming emission legislation, such as Euro IV, V, US2007, the sensor helps to control different kinds of exhaust gas aftertreatment both at gasoline and diesel engines, e.g.:

- Regeneration of NO_x storage catalyst at leanburn gasoline and diesel engines
- On-board-diagnosis and closed-loop control of Selective-Catalytic-Reduction (SCR) applications at Light and Heavy Duty Trucks

Concept

The Smart NO_x-Sensor consists of the sensing element (material: Zirconia multilayer ceramics in metal housing) and the electronic control unit, combined by an approx. 600mm (24 inches) cable.

Similar to a wide-range linear lambda sensor, electro-chemical pumps adjust the oxygen concentration in the cavities of the sensing element.

The NO_x concentration in the exhaust gas is proportional to the electrical current controlling the pumps.

Based upon the physical measurement, the electronic control unit generates 3 output signals (NO_x, binary, linear). The signals are transmitted to the engine ECU digitally via CAN bus.

VDO

UniNO$_X$-Sensor

Product benefits

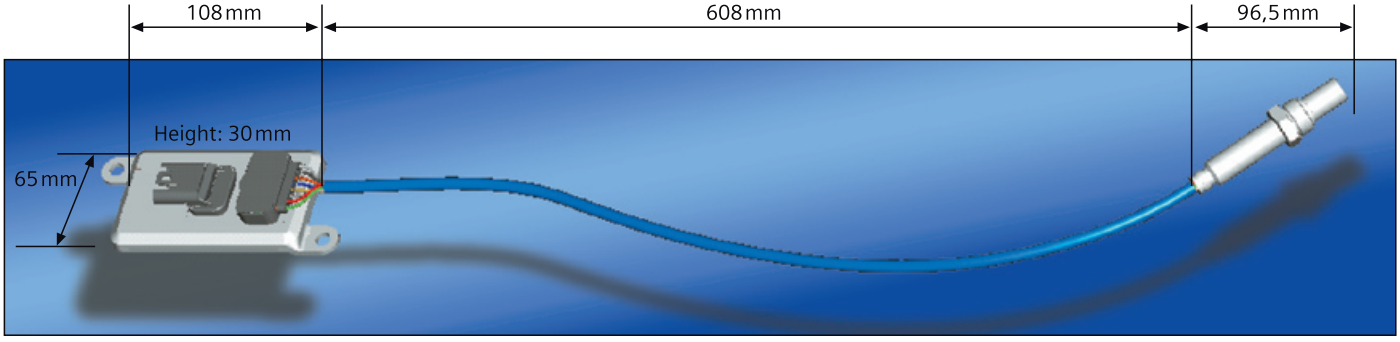
- Helps to achieve emission legislation
- Fulfills On-Board-Diagnosis requirements
- Increase of fuel economy
- Wide range of applications:
  - Gasoline / Diesel
  - Passenger car / Truck
- Triple signal output:
  - NO_x -concentration
  - linear lambda (λ)
  - binary lambda (λ)
- Digital data transmission via CAN-Bus (SAE-J-1939)
- Integrated control Electronics – no further hardware in engine ECU required
- Independent of catalyst supplier, ECU supplier and engine management System – no adaption necessary

Product technical specifications

ZrO_2-based multilayer sensor with 3 oxygen pumps

Triple output signal (NO_x, linear λ, binary λ)

Supply voltage:	12V / 24V	
Measuring range:	NO_x:	0 - 500ppm or 0-1500ppm
	lin. λ:	0,75 to air
	bin. λ:	>0,75V at λ=0,9; <0,2V at λ=1,1
Accuracy:	NO_x:	at 100ppm and 500ppm: ± 10%; at 0ppm: ± 10ppm
	lin. λ:	at λ=1: ±6 (1000/λ) fresh
	bin. λ:	1,002 ± 0,008



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