



# PRODUCT INFORMATION

## Exhaust Gas Temperature (EGT) Sensor

- Leading supplier for the independent aftermarket
- Applications available for European, American and Japanese makes
- HELLA lambda sensors provide long service life, high reliability and optimal harmonization with each individual type of engine
- Supports lower emissions, improved engine efficiency and optimised performance

### PRODUCT FEATURES

HELLA offers a wide and innovative portfolio of high temperature sensors covering virtually all makes and models.

The exhaust gas temperature sensor records the temperature ahead of the catalytic converter or the diesel particulate filter and sends this as a voltage signal to the engine control unit. In addition, high temperature sensors protect components in the area of the hot exhaust gas flow from critical overheating. Customers benefit from lower emissions, an improved engine efficiency and optimized performance and then from the resulting lower fuel consumption.

**Function:** An electrical resistor is installed in the measuring tip of the exhaust gas temperature sensor, the value of which changes depending on the temperature. These resistors are called thermistors and are divided into two groups. Here, a distinction is made between NTC thermistors and PTC thermistors, depending on their temperature behavior ( Figure 1 ).

**NTC - resistor with negative temperature coefficient** (the resistance decreases with increasing temperature)

**PTC - resistor with positive temperature coefficient** (the resistance increases with increasing temperature)

The exhaust gas temperature sensor (EGTS) is usually connected directly to the engine control unit (ECU). Together with another resistor ( $R_{UP}$ ) in the control unit, the sensor forms a series connection through which an electrical voltage is divided. The signal is measured at the voltage divider and converted into temperature information by an algorithm ( Figure 2 ).

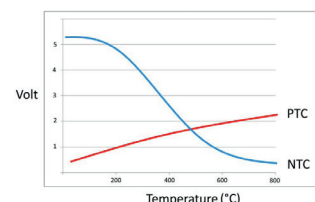


Figure 1: Example of PTC / NTC temperature behavior

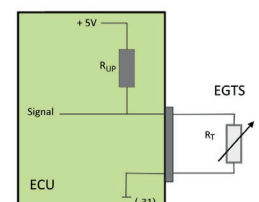


Figure 2: Circuit for exhaust gas temperature sensor

# HELLA EXHAUST GAS TEMPERATURE SENSOR

## Failure Symptoms

The following effects can occur in the event of an exhaust gas temperature sensor failure:

- Warning lamp for glow plug system flashes
- Warning lamp for particulate filter illuminates
- Engine control lamp is on
- Increase in exhaust emissions (CO, NOx and HC)
- Poor driving behavior because of shortened regeneration intervals of the particulate filter
- Increased fuel consumption caused by longer particulate filter regeneration
- Loss of performance caused by incorrect detection of the degree of saturation of the particulate filter

## Causes of failure

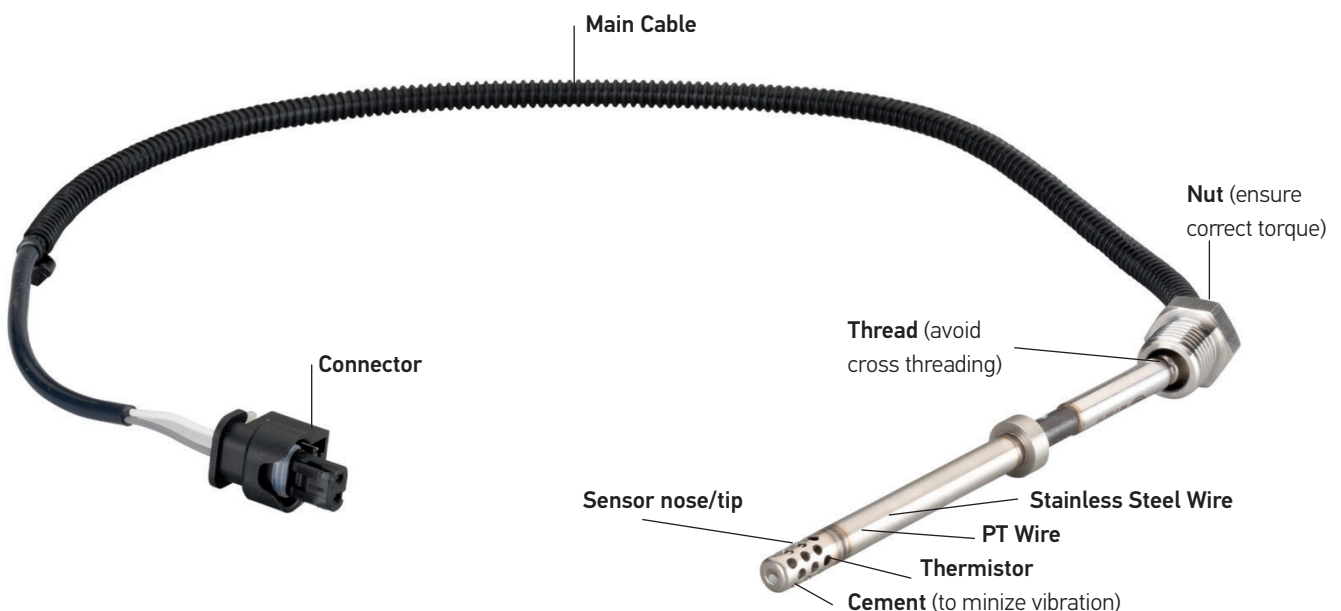
The following causes can be responsible for the failure of the exhaust gas temperature sensor:

- Faulty power supply
- External damage
- Internal damage to the electrical wiring caused by strong vibrations in the exhaust gas system
- Excessively high exhaust gas temperatures as a result of defects in the injection system or in the air-fuel mixture

## Product life expectancy

Well-installed EGTs that haven't experienced any negative operating conditions can typically last for 100,000 miles or even longer. For guidance on inspection, testing, or service schedules, refer to the vehicle's operating manual. It's common for EGTs to become damaged during the replacement of exhaust parts.

## Anatomy of an Exhaust Gas Temperature Sensor



Product features, specifications and availability are subject to change without notice.

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