

WHAT IS A WHEEL SPEED SENSOR?

A wheel speed sensor or vehicle speed sensor (VSS) is a type of tachometer. As a sensor device, it reads the rotation speed of the vehicle wheel and usually comprises a toothed ring and pickup. Originally developed for an anti-lock braking system (ABS), a wheel speed sensor is also used for adaptive cruise control (ACC), electronic stability control (ESC), and anti-slip regulation (ASR). A wheel speed sensor uses the hall effect during operation to detect movements in the front and rear directions.

The two following types are available for a wheel speed sensor.

- **Passive sensor:** A wheel speed sensor that reads the change in the magnetic field caused by the rotation of a ring, which has projections, mounted on the drive shaft or similar device.
- **Active sensor:** A sensor that reads the change in the magnetic field caused by the rotation of the magnetic encoder.



Wheel Speed Sensor

TYPICAL SYMPTOMS IN CASE OF FAILURE

Symptoms in case of failure

- Illumination of ABS warning light
- Traction control does not work during sudden braking, or the braking distance increases
- The wheel locks during braking
- The handling performance decreases during bad weather

Typical causes of failures

- Short circuit of the internal circuit
- Heavy fouling, or damage from external causes
- Increase in clearance at the wheel bearing
- Mechanical damage of the encoder wheel