

Speed Sensors

The Bosch-speed sensors are applicable for camshafts, crank shafts or wheel-speed. There are inductive sensors (passive sensors) or Hall-sensors (active sensors) available. Both working principles have the same robustness.

In order to improve comparability, Bosch Motorsport specified standardized wheels, for inductive- as well as for Hall-sensors. The data shown in the Bosch Motorsport datasheets refer to a standardized wheel. Alternative wheels can be measured on request.

Inductive Sensors

It basically consists of a magnetic core surrounded by a wire-winding. If a ferromagnetic wheel with a special arrangement of teeth and gaps passes the sensor, an alternating field is generated in the magnetic circuit, which induces a voltage in the winding. The inducted voltage is dependent on the rotational speed. I-Sensors need a basic rotational speed in order to generate a measurable voltage; a measurement direct from standing-position is not possible. The limit of the detecting speed depends on the changing speed of the magnetic field and the amount of windings, as well as the geometric dimensions of the core.

Hall-sensors

Because of its measuring principle, a Hall-sensor is able to identify a rotation from a standing-position. There are Hall-sensors with and without integrated magnets.

Those with magnets are made for wheels made of ferromagnetic material. Hall-sensors without magnet are applicable for so-called multipole wheels.

The Bosch-Hall-sensors are equipped with magnets. ABS sensors, which have to be regarded separately, are an exception. Furthermore, there are side-read and bottom-read Hall-sensors possible. The difference between both is the installation position. In the case of a side-read sensor,

the sensor is mounted laterally to the wheel. In the case of a bottom-read sensor, the sensor is mounted radially to the wheel.

The Bosch Motorsport Hall-sensors are designed as bottom-read sensors. In case of a changed installation, a correct behavior cannot be guaranteed anymore.

Our Hall-sensors have one or two Hall-ICs. In case of two ICs, the output signals are additionally differentiated. This sensor works more exact (with a better repeat accuracy), but is depending on the sense of rotation and the mounting position.

Both Hall-sensors have the possibility of learning the air gap within a certain range.