

Turbocharger Speed Sensor for High Volume Production

New from Micro-Epsilon is a range of turbocharger speed sensors for high volume production. The turboSPEED TSSC series of sensors operates according to the eddy current principle and so provide several benefits. The sensor is cast in plastic and has a separate electronics unit, which can be integrated in the engine compartment separate from the turbocharger.

Speeds of 200 to 400,000 rpm can be measured accurately with the sensor. Due to the complex electronics and special linearisation, the sensor can measure on turbine wheels made from aluminium or titanium. Titanium is well known as a poor electrical conductor and is therefore generally difficult to measure. The electronics for each turbine model is configured and fixed afterwards for high precision. The low cost version of the sensor meets all necessary requirements for



▲ turboSPEED TSSC

the automotive industry. The housing is protected to IP67; the electronics complies with the EMC requirements in the engine compartment. Different from conventional sensors for turbochargers, the new sensor does not measure on the shaft between the two turbine wheels, since these are often no longer accessible with the latest turbochargers.

The turboSPEED TSSC detects the

edge of the compressor wheel on the »cold« side of the turbocharger and is integrated in the housing there.

The vanes of the compressor wheel cross the measurement field of the sensor, which registers an impulse each time the electromagnetic field changes. By using the sensor in series the available power range of the turbocharger can be fully exploited, as the speed of the turbocharger will be prevented from running too high. The turboSPEED 135 sensor is also available for speed measurements in R&D laboratories.

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