AdBlue® / DEF quality sensor

Optical sensor uses the refractive index to log AdBlue® quality

Since the introduction of the EURO 5 standard and especially in accordance with US 10 and EURO 6, the NOx proportion of exhaust gas in high performance diesel engines has to be reduced with the assistance of SCR technology (selective catalytic reduction). This is achieved by dosed supply of a water based urea solution, so-called AdBlue®, to the exhaust flow. According to the latest requirements, the quality of the urea solution requires permanent monitoring.

Quality sensor for on and off road applications detects AdBlue® quality.

The AdBlue® quality sensor of TT Electronics - AB Elektronik Sachsen GmbH meets the requirements for systems in car, truck and off-road applications. The compact, cost-optimised design is resilient in the face of environmental factors like dirt and temperature fluctuations as well as aging. Designed as a refractometer, the sensor measures the refractive index of AdBlue® and provides temperature-compensated information according to the urea concentration. Incorrect filling or inadmissible admixtures are detected immediately and as a result consistent AdBlue® quality is guaranteed in the SCR system and the AdBlue® tank.

Flexible installation solution for new applications and retrofitting

The technical solution selected permits TT Electronics - AB Sachsen Elektronik to realise a sensor that combines sturdiness with maximum of mounting flexibility. Among other things, the sensor can be mounted in the base of the AdBlue® tank, directly inside the tank or also as an in-line solution between the tank and dosing system. Apart from implementation in new applications, the solution is also suitable for retrofitting in existing systems.

Sensors for exhaust systems are becoming increasingly important

The necessity for permanent electronic monitoring of the AdBlue® quality results from the strict rules of US 10 and EURO 6 legal requirements for OBD (on-board diagnostics).

This provides for the electronic monitoring of all environmentally relevant systems. Consequently, vehicles delivered to countries with those strict regulations (in off road application called Tier 4f) have to be fitted with comprehensive electronic support to monitor all environmentally relevant systems.

Comprehensive portfolio for exhaust system temperature, pressure and quality sensors

The interplay of the systems in the exhaust line and the special conditions that prevail in this system confront the industry with constantly new challenges. TT Electronics – AB Elektronik Sachsen GmbH today offers a comprehensive product portfolio and can look back on several years of field experience beginning in EURO4 and EURO5 as well as Tier 4i and f engines. For example, apart from the high temperature sensors with analytical electronics, freeze-proof pressure sensors and not least AdBlue® quality sensors, these include solutions in use today at leading OEMs that without exception are in the high performance range and simultaneously cost-optimised.
TT Electronics Sensing and Control

“We create efficient electronic solutions for sophisticated sensors and control applications.”

The companies of TT Electronics Sensing and Control have been recognised partners for the successful development and production of sturdy, reliable sensors and sophisticated power electronics for more than thirty years. We hold a range of important patents based on versatile technologies and offer our customers the expertise from successful cooperation with the leading manufacturers of automotive and off-road applications.

Areas of expertise
After-treatment of exhaust gases • Chassis • E-mobility • Transmission • Lighting / LED • Powertrain

Products
Position sensors • Pedals • Pressure sensors • Temperature sensors • Speed sensors • Quality sensors • LED modules (headlights) • E-controls and drives • E-wheel hub motor control • On-board power supply switches • ECU / E-mobility

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Alternative product names:
AdBlue® sensor, DEF sensor, AdBlue® quality sensor, DEF quality sensor, refractometer, UREA sensor
Quality sensor, fluid properties sensor

Typical applications:
Diesel engines in cars, trucks and off-road applications