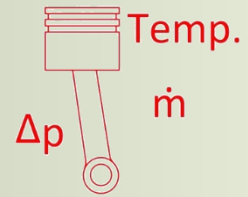


# Sensors for Exhaust Gas Aftertreatment



Proposal for 1-day in-house workshop / 4 or more people

Date according to individual arrangement

**Speaker:** Stefan Carstens, Director, EngineSens Motorsensor GmbH

## Topics:

- ❖ Oxygen probes
- ❖ Exhaust gas temperature sensor
- ❖ Nitric oxide probes
- ❖ Ammonia sensor
- ❖ Pressure sensors for particulate filter monitoring
- ❖ soot sensors

## Measurements



Sensors

Diagnosis

Pressure

Temperature

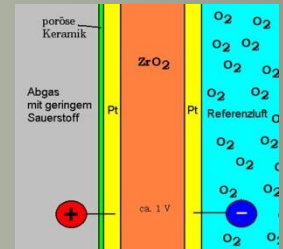
SCR-Systems

Exhaust Emissions

## Content of the seminar

### Oxygen sensors

- ❖ Binary lambda probe: from finger probe to planar technology
- ❖ Oxygen sensors based on zirconia
- ❖ Resistive oxygen sensors based on titania (a relic of bygone days?)
- ❖ Wideband-oxygen sensor, reference air and pumped solutions
- ❖ Super-Fast-Light-Off-Technologie



### Exhaust gas temperature probes

- ❖ RTDs
- ❖ PT200 in combined thin-film and thick-film technology
- ❖ NTC sensors: characteristics of the R-T-curve
- ❖ Thermocouples based on Seebeck effect
- ❖ The K-effect in test bench applications
- ❖ Installation instructions and installation example for high temperature applications

### Nitrogen oxide sensors

- ❖ Structure and function
- ❖ Why more cavities?
- ❖ Can NOx in rich exhaust gas be measured?
- ❖ Cross-Sensitivities and restrictions in use



### Ammonia sensors

- ❖ Technology based on metal oxides
- ❖ Application in SCR systems

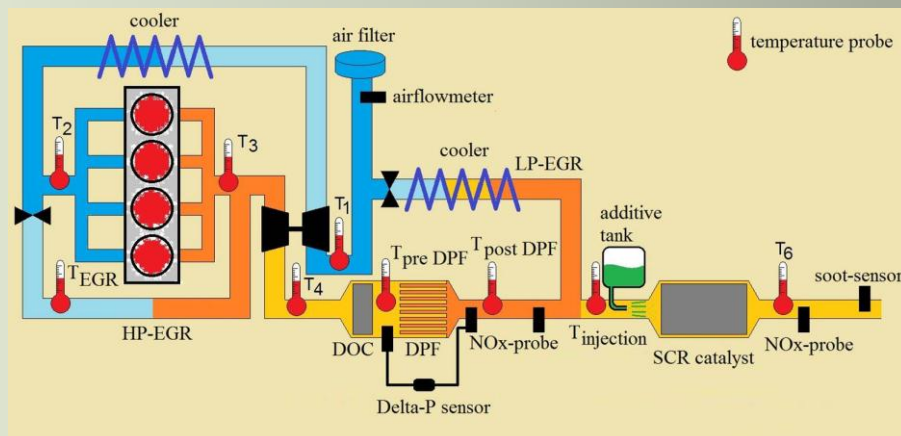
### Pressure sensors to monitor DPF

- ❖ Differential pressure sensors
- ❖ Absolute pressure sensors



### Soot sensors

- ❖ Which conceptual approaches are possible?
- ❖ Soon in series? The resistive soot sensor: structure and function
- ❖ Soot sensors with radio transmitter and receiver
- ❖ Charge sensor



## Your Speaker

**Stefan Carstens** started his career in 1990 at a company near Pforzheim specialized in antenna technology. Three years later he moved to the Heraeus Group and in the latter's sensor technology division. He passed through numerous departments, including production engineering and control, before taking over the group's Freiberg am Neckar sales office as key account manager for exhaust gas sensors. In March 2001 he was put in charge of a sensor company located in Mannheim. In May 2010 he founded EngineSens Motorsensor in Viernheim with the main focus on sensors for exhaust gas aftertreatment systems for the automotive industry, power stations and renewable energies. He studied engineering at the former TH Darmstadt and left with a diploma.

## Time schedule of the seminar

08:30	beginning
10:00	coffee break
12:00	lunch
15:00	coffee break
17:00	end