

SENSORS

for Exhaust Gas Cleaning and CO₂ Reduction

29 and 30 June 2016 | Leipzig, Germany



+ Guided factory tour at
PORSCHE!

SIMULTANEOUS
INTERPRETATION 

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TOP ISSUES

- » Alternative detection of particle emissions and particulate filter damage
- » Exhaust aftertreatment of Diesel Engines and its OBD
- » Applications of photoacoustics in car emission testing
- » Sensors for exhaust gas after treatment in medium-speed engines
- » Nickel alloys for high temperature applications in automotive exhaust gas systems

SPEAKERS



Robert Cloudt
Bosal Emission
Control Systems N.V.



Jürgen Dudek
HJS Emission
Technology GmbH &
Co. KG



Konstantin Eberle
MAN Diesel & Turbo
SE



Prof. Dr. Thomas
Ortlepp, CiS
Forschungsinstitut für
Mikrosensorik GmbH



Dr. Sebastian Reiß
Continental
Automotive GmbH



Frank Rothe
TT Electronics,
AB Elektronik
Sachsen GmbH



Alexander Terres
BMW Group



Sathish Kumar
Vadivel
Isuzu Motors
Germany GmbH

INCLUDING CONTRIBUTIONS BY

- » BMW Group
- » Bosal Emission Control Systems
- » Fraunhofer IBP
- » Continental Automotive
- » CPK Automotive
- » HJS Emission Technology
- » Isuzu Motors Germany
- » MAN Diesel & Turbo
- » VDM Metals

CONFERENCE CHAIR

Stefan Carstens
Managing Director
EngineSens Motorsensor GmbH





Dr. Judit Angster
Team Leader Photoacoustic
Fraunhofer IBP



Frank Noack
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Engineer – Application
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Dr. Markus Knestel
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Matthias Weber
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Sp. z o. o. Sp. k.



Prof. Dr. Andras Miklos
Director
Steinbeis-Transferzen-
trum Angewandte Akustik
and Fraunhofer IBP

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08:00	Welcome reception, including coffee and tea Hand-out of the conference material		Exhaust Gas Temperature Measurement	
08:30	Welcome and opening words by: Andras Hetenyi , Project Manager Automotive, Süddeutscher Verlag Veranstaltungen GmbH and Stefan Carstens , Managing Director, EngineSens Motorsensor GmbH		11:30	Monitoring of exhaust gas temperatures – after the diesel engine, now in the Otto engine ?! » Necessity and possibilities for exhaust gas temperature measurement » Digital high temperature sensor (up to 1100°C) – technical implementation » Thermo elements – another component of the successful exhaust gas sensors by AB Elektronik Frank Rothe , Product Application Manager Pressure, Temperature and Fluid Property, TT Electronics, AB Elektronik Sachsen GmbH
08:45	Influence of particle size distribution and device characteristics on particle concentration measurements » Comparison of the counting efficiency curve of different particle detectors » Comparison of the effective principle of condensation nuclei counters and charging counters and their effect on the counting result » Measurements of the particle size distribution on the motor test bench Alexander Terres , PhD candidate, BMW Group		12:00	High temperature NTC element H650 » NTC based temperature element, design » RT curve and reliability data » Application examples and design options Dr. Lutz Kirsten , Director Temperature Sensor Elements, TDK-EPC AG & Co. KG
Soot-Sensors			12:30	Discussion and time for questions
09:15	Capacitive soot sensor » Continuous particulate filter efficiency monitoring » Soot load calculation » Particulate filter OBD monitoring Sathish Kumar Vadivel , Engineer – Application and Development, Isuzu Motors Germany GmbH		12:45	Lunch and opportunity for networking 
09:45	Continental ePM sensor for detecting particle emission » Function of the Continental electrostatic particle sensor » ePM sensor signal characteristic » DPF diagnosis strategy using the ePM sensor Dr. Sebastian Reiß , Development engineer, Continental Automotive GmbH		14:00	Nickel alloys for high temperature applications in automotive exhaust gas systems » Portfolio of High Temperature Alloys » High Temperature Corrosion Resistance » Hot Strength / Creep » Examples of use Frank Scheide , Key Account Manager, VDM Metals GmbH
10:15	Discussion and time for questions		Sensors for Test Benches and Analyzes	
10:30	Coffee break and opportunity for networking 		14:30	Valve temperature during running operation » Set-up of conventional outlet valves » Next evolutionary level: Filled valves for the reduction of the valve plate temperature » Inspection on the test bench » Set-up of test bench templates » Experiences gained from the test bench runs Reino Eskelinen , Owner and CEO, Reino Race Consulting
11:00	Alternative On-Board sensing of Particulate Filter damage » Cost-effective detection filter based concept » Detection of soot levels below Euro 6c threshold limit » Strategy development Robert Cloudt , Team Leader, Bosal Emission Control Systems NV.		15:00	Discussion and time for questions
			15:15	Coffee break and opportunity for networking 
			15:45	Departure by busses to the guided factory tour at Porsche
			16:30	Start of the guided factory tour at Porsche
			18:00	End of the factory tour and begin of the dinner party at Porsche 
			21:30	End of the 1 st conference day and return to hotel

08:15 Welcome reception, including coffee and tea 

08:45 Welcome and opening words by: **Stefan Carstens**, Managing Director, EngineSens Motorsensor GmbH

NO_x-Sensors

09:00 **Applications of photoacoustics in car emission testing**
Fields of application:
» Ammonia
» Nitrogen monoxide (NO), nitrogen dioxide (NO₂)
» Nanoparticles

Dr. Judit Angster, Team Leader Photoacoustic, Fraunhofer IBP
Prof. Dr. Andras Miklos, Director, Steinbeis-Transferzentrum Angewandte Akustik and Fraunhofer IBP

09:30 **Optical trace gas sensors for OEM applications**
» Introduction KNESTEL Technologie und Elektronik GmbH
» Laser absorption spectroscopy
» Photoacoustic sensor for NO₂ measurement
» Chemiluminescence detectors
» Multigas analyzer for combustion processes

Martin Endras, Technical sales, KNESTEL Technologie & Elektronik GmbH
Dr. Markus Knestel, CEO, KNESTEL Technologie & Elektronik GmbH

10:00 **Development of a new NO_x sensor design for OEM and retrofit applications**
» New technological approach
» Implementation in design according with requirements
» Validation and field application

Frank Noack, CEO, CPK Automotive GmbH & Co. KG

10:30 **Discussion and time for questions**

10:45 Coffee break and opportunity for networking 

ECUs, OBD and Implementation of Sensors

11:15 **Exhaust Aftertreatment of Diesel Engines and its OBD**
» Example Exhaust System with DPF and SCR
» Control and Diagnostic Strategies
» Relevant Sensors, NO_x, Particles, Temperature, Pressure
» Sensor Diagnostics

Matthias Weber, Founder and CEO, Roben Automotive Sp. z o. o. Sp. k.

11:45 **Cheating on Onboard Diagnostic Systems**
» Background: Legal do and don'ts
» DPF delete Kits for Tuning
» SCR Delete Kits and Emulators for cost Reduction
» Protect your System against intentional attacks

Marcel Romijn, Business Development & Project Leader, BRACE automotive BV Netherlands

12:15 **Analog signal processing from sensors in the exhaust area**
» In which form are the generated signals available?
» What is the ideal adaptation?
» Which adaptation is practically oriented?
» How are the signals transmitted?

Jürgen Dudek, Electronics-hardware-developer, HJS Emission Technology GmbH & Co. KG

12:45 **Discussion and time for questions**

13:15 Lunch and opportunity for networking 

14:30 **Sensors for exhaust gas after treatment in medium-speed engines**
» Challenges in the application of sensor technology in medium-speed engines
» Requirements for the use of automotive sensors and field experience of MAN Diesel & Turbo

Konstantin Eberle, Function Development Engineer, MAN Diesel & Turbo SE



Differential Pressure Sensors

15:00 **Media-resistant silicon pressure sensor for temperatures up to 300°C**
» Requirements on the relative and differential pressure sensors in exhaust applications
» Temperature, media-resistance, stability and cross-sensitivity
» Innovations in microsystem technology and solution suggestions

Prof. Dr. Thomas Ortlepp, CEO, CiS Forschungsinstitut für Mikrosensorik GmbH

Torque Sensors

15:30 **Flexplate torque sensor for engine and gearbox control**
» Misfire detection
» Knocking detection
» Realtime individual cylinder sensing
» Engine gearbox synchronisation

Johannes Giessibl, Senior Magnetoelastic Project Manager, Methode Electronics International GmbH

16:00 **Discussion and time for questions**

16:15 End of the 3rd International Conference

INTRODUCTION TO EXHAUST GAS SENSOR SYSTEMS

TUESDAY | 28 June 2016

THE BASICS OF EXHAUST GAS SENSOR SYSTEMS

Technical supervision

Stefan Carstens, Managing Director,
EngineSens Motorsensor GmbH



Objectives

The seminar will teach you essential knowledge about the key sensors and how they work. Stefan Carstens will back up the theory with numerous practical examples. By the end of this one-day introduction, you will know and understand the main terms and background information and will be up-to-date with all of the current science and technology.

09:00 Welcome coffee
Handout of seminar materials 

09:15 **Opening of the seminar and moderation**

Stefan Carstens, Managing Director,
EngineSens Motorsensor GmbH

09:30 **Applications for exhaust gas sensors**

- » Where is each type of sensor used?
- » Diesel with NO_x trap and DPF
- » Diesel with DPF and SCR
- » Influences of the new driving cycle WLTC and the RDE legislation

10:15 **Exhaust gas temperature sensor systems**

- » PT200 sensors in combined thin-film and thick-film technology
- » NTC sensors: special features of the characteristic curve
- » Special features in test bench applications
- » Type N thermocouples in a series production vehicle, specially designed for high-temperature applications above 1000°C

11:15 Coffee break 

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11:45 **Oxygen sensors**

- » Step-change lambda sensor: from finger-type sensors to planar technology
- » Lambda sensors based on zirconium dioxide
- » Broadband lambda sensor: oxygen-relevant solutions and pumped sensors
- » Superfast light-off technology

13:15 Lunch break 

14:15 **Nitrogen oxide sensors**

- » Why multiple cavities?
- » Pumping flows Ip1 and Ip2
- » Cross-sensitivities and restrictions in use
- » Poisoning symptoms

15:30 **Pressure sensor systems for particulate filter monitoring**

- » Differential pressure sensors – the current state-of-the-art?
- » Absolute pressure sensors – too imprecise for Euro 6-2?
- » Advantages and disadvantages of both methods

16:15 Coffee break 



16:45 **Soot sensor systems**

- » Which approach concepts are available?
- » Three different concepts
- » Already in series production! Resistive soot sensors – layout and function

17:30 **Gas sensors**

- » Possibilities for fulfilling the on-board diagnostics for HC
- » Sensor arrays
- » Mixed potential sensors

18:15 **Discussion and time for questions**

18:30 Begin of the dinner party 

21:00 End of the seminar:
The basics of Exhaust Gas Sensor Systems



CONFERENCE CHAIR

Stefan Carstens
 Managing Director
 EngineSens Motorsensor GmbH

Stefan Carstens studied Industrial Engineering with Business Studies at the TH Darmstadt, focussing on Engineering Design in the field of mechanical engineering. After successfully completing his studies, he started his professional career in 1990 in an electrical engineering company, WISI KG, near Pforzheim. Three years later, he moved to the Heraeus Gruppe (Group) and passed through many departments in the company's "Sensorik" (Sensors) division, amongst others Production Planning and Control and Internal Sales, prior to taking charge of the Sales Office in Freiberg a.N. as the "Exhaust Gas Sensors" Key Account Manager. In March 2001, he entered the Management at a company for sensor technology. In May 2010, he founded the company EngineSens Motorsensor GmbH in Viernheim. One of its main focuses is the design and production of high-temperature sensors for use in the field of exhaust gases, and the application of further exhaust gas sensors for the purification of exhaust gas in combustion engines.

At this international congress, Süddeutsche Verlag Veranstaltungen will be bringing together Managing Directors, Division Heads, Development Engineers, Department Heads und Technicians from the fields of development and pre-Development, Design, Engineers, Application Engineers and Executives from the following areas:

- » Engine testing
- » Engine management
- » Control unit development
- » Emissions, emission systems, low-emission systems
- » Drive systems
- » EGR development
- » Catalytic converters
- » OBD experts
- » Electronics development
- » Sensor development
- » SCR systems
- » Diesel particulate filters
- » Technical marketing, purchasing and sales
- » Sensor production suppliers
- » Component suppliers

ORGANISATION AND REGISTRATION

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Save the Date

Innovation and Development result from the exchange of know-how and experience. Süddeutscher Verlag Veranstaltungen offers a platform for discussion and knowledge transfer. Companies are always in the process of creating wider networks.

CONFERENCES 2016 (extract):

RAMP UP: Management in the Automotive Production
 15 + 16 March 2016 in Stuttgart/Sindelfingen
 incl. guided tour at DAIMLER

3D-PRINTING: Additive Manufacturing in the Automotive Industry
 12 + 13 April 2016 in Karlsruhe incl. guided tour at STRATASYS

TECHNICAL PARTICULATE CLEANLINESS

10 + 11 May 2016 in Würzburg
 incl. guided tour at BROSE, Bosch Rexroth and Schaeffler

AUTOMOBIL INTERIEUR: Living and Working Place
 18 + 19 October 2016 in Ingolstadt incl. guided tour at AUDI

ROBOTIC in the Automobile Industry
 9 + 10 November 2016 in Ingolstadt incl. guided tour at AUDI

TECHNICAL ORGANIC CLEANLINESS

22 + 23 November 2016 in Augsburg
 incl. guided tour at FUJITSU Technology

SEMINARS 2016 (extract):

SELF-TAPPING SCREW TECHNOLOGY: current situation in the automotive industry
 21 April 2016 in Stuttgart and 9 June 2016 in Munich

BASIC PRINCIPLES OF TECHNICAL CLEANLINESS

19 + 20 April 2016 in Stuttgart and 28 + 29 June 2016 in Munich

PRICING AND SALES

5 + 6 April 2016 in Munich and 21 + 22 June 2016 in Stuttgart

DATE OF EVENT

Wednesday, 29 and Thursday, 30 June 2016

Additional offer: Seminar – Basic principles of exhaust gas sensor technology on 28 June 2016

VENUE

Mercure Hotel Leipzig am Johannisplatz

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A number of rooms are reserved for you until 13 Mai 2016. Reservation after this date will be subject to availability.

PARTICIPATION FEE

The participation fee for the International Conference Sensors for Exhaust Gas Cleaning and CO₂ Reduction without the introductory seminar is 1,695 € plus statutory VAT.

The participation fee for the International Specialist Conference Sensors for Exhaust Gas Cleaning and CO₂ Reduction plus the introductory seminar the day before is 2,295 € plus statutory VAT.

The following services are included in the participation fee:

- » Simultaneous interpretation English and German
- » Participation in the conference
- » Conference material as print out
- » Refreshments during the breaks
- » Lunch on both days
- » Evening event at the porsche restaurant
- » Guided company tour at Porsche*

REGISTRATION

Please register using the attached registration form or via Internet under www.sv-veranstaltungen.de After receipt of your written registration, you will be registered as a participant and will receive written confirmation and an invoice which is due prior to commencement of the event. **(Event number 816.101.17)**

In case of cancellation after the cancellation deadline (3 June 2015), or in case of non-attendance, the full participation fee shall be charged; however, a replacement participant may attend. Cancellations made prior to this date will be charged a € 150 administration fee. All cancellations must be made in writing.

The organizer reserves the right to move, change or cancel at short notice the complete event or individual parts thereof with regard to location and/or time.



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28 June 2016
Seminar: Basic principles of exhaust gas sensor technology

29 and 30 June 2016
3rd International Conference: Sensors for Exhaust Gas Cleaning and CO₂ Reduction

Mercure Hotel Leipzig
am Johannisplatz

Organisation and Registration

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Registration form | Online on www.sv-veranstaltungen.de or via email: register@sv-veranstaltungen.de

I hereby bindingly register for the International Conference (816.101.17):

- 3rd International Conference: Sensors for Exhaust Gas Cleaning and CO₂ Reduction (29 + 30 June 2016) at the price of 1,695 € plus statutory VAT
- Seminar: Basic principles of exhaust gas sensor technology (28 June 2016) at the price of 895 € plus statutory VAT
- Seminar: Basic principles of exhaust gas sensor technology (28 June 2016) + 3rd International Conference (29 + 30 June 2016) at the price of 2,295 € plus statutory VAT
- We are interested in an on-site company presentation. Please send us information material free of charge and without any obligation.

In addition, I register for the following events free of charge (limited number of participants):

- Company tour at PORSCHE (29 June 2016)
- Dinner Party at Porsche (29 June 2016)

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