2nd INTERNATIONAL SPECIALIST CONFERENCE

SENSORS
for Exhaust Gas Cleaning and CO₂ Reduction

24 and 25 June 2015 | Nuremberg

TOP ISSUES
- Particulate matter and nitrogen oxide reduction by means of vehicle technology in modern cars
- Physical surface analytics for characterisation of sensors in the exhaust gas system
- New variants of thermoelectric exhaust gas sensors
- Trends and future developments concerning O₂ sensors

SPEAKERS, AMONGST OTHERS

- Dr. Olaf Kiesewetter
  UST Umweltsensor-technik GmbH
- Prof. Dr. Reinhard Kolke
  ADAC Technik Zentrum Landsberg am Lech
- Pascal Mast
  TÜV SÜD Auto Service GmbH
- Prof. Dr. Ralf Moos
  University Bayreuth
- Dr. Petra Neff
  Robert Bosch GmbH
- Dr. Alexander Sappok
  Filter Sensing Technologies Inc.

INCLUDING CONTRIBUTIONS BY
- A&D Europe GmbH
- ADAC Technik Zentrum Landsberg am Lech
- Continental Engineering Services GmbH
- Ecole des Mines de Saint-Etienne
- Filter Sensing Technologies Inc.
- IAV GmbH
- Robert Bosch GmbH
- SGS INSTITUT FRESENIUS GmbH
- Stoneridge Inc.
- Temperaturmeßtechnik Geraberg GmbH
- TÜV SÜD Auto Service GmbH
- UST Umweltsensor Technik GmbH

SIMULTANEOUS INTERPRETATION

Profit from our early bird registration until 30 April 2015 and save 100 €!

www.sv-veranstaltungen.de

Media partner: DieselNet
Stefan Carstens studied Industrial Engineering with Business Studies at the TU 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.
08:30 Welcome reception, including coffee and tea
Hand-out of the conference material

09:00 Welcome and opening words by:
Andras Hetenyi, Project Manager Automotive,
Süddeutscher Verlag Veranstaltungen GmbH and
Stefan Carstens, Managing Director,
EngineSens Motorsensor GmbH

09:15 Particulate matter and nitrogen oxide reduction
by means of vehicle technology in modern cars
» Necessity of particulate matter and nitrogen oxide reduction
» Measurements on cars and necessity of reduction
» Consideration of realistic drive cycles
» EcoTest and Green NCAP
» Experiences with AdBlue and other technologies for diesel

Prof. Dr. Reinhard Kolke
Head of Test and Technology, ADAC Technik Zentrum Landsberg am Lech
Andrea Gärtner
Special Advisor Technology, ADAC Technik Zentrum Landsberg am Lech

11:30 Trends and future developments in the area of O₂ sensors
» Legislation
» Technical developments
» System requirements

Dr. Petra Neff, Group Supervisor, Robert Bosch GmbH

11:00 Oxygen sensors

11:30 Pressure Sensing Applications & Requirements @ Exhaust
» Pressure sensing technologies (overview)
» Pressure-based sensing applications @ exhaust systems
» System-level-requirements (interfaces, operational conditions)
» Future trends & challenges

Arwed Graubner, Key Account & Biz. Development Sensing Asia and the Americas, Zentrum Mikroelektronik Dresden AG
Torsten Herz, Application Engineering Team Manager, Zentrum Mikroelektronik Dresden AG

12:00 Sensors for CO₂ reduction

12:30 Discussion and time for questions

12:45 Lunch and opportunity for networking

14:30 New technologies

14:30 Robust and temperature-stable sensors for automotive applications
» (Multi-layer) ceramics as technology platform for robust, temperature-stable sensors
» Trends in material, material structure, deposition, sinter technology and ceramic-compatible construction and connection technologies
» Ceramic-based physical and chemical sensors (examples)

Dr. Steffen Zische, Group Supervisor Microsystems LTCC and HTCC, Fraunhofer IKTS

15:15 Guided city tour including “imperial specialties”

18:00 Dinner and opportunity for networking

22:00 Return to hotel
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:00</td>
<td>Welcome and opening words by Stefan Carstens, Managing Director, EngineSens Motorsensor GmbH</td>
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<tr>
<td>08:15</td>
<td>Development of NOx gas sensors for exhaust</td>
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<td>- YSZ mixed potential based sensor</td>
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<td>- Improvement of NOx selectivity</td>
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<td>- Composite electrode material</td>
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<td></td>
<td>Prof. Dr. Jean-Paul Viricelle, Researcher, Mines Saint-Étienne</td>
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<tr>
<td>08:45</td>
<td>New gas sensor systems for measuring nitrogen oxides and ammonia in exhaust gas systems</td>
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<td>- Requirements for sensors in exhaust gas systems</td>
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<td></td>
<td>- Sensor concept – Measurement/detection principle, sensor design, AVT and signal processing</td>
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<td>- Test results on sensitivity, selectivity, interferences</td>
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<td>- Conclusions and potential for the development of large series products</td>
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<td>Dr. Olaf Kiesewetter, Managing Director, UST Umweltsensortechnik GmbH</td>
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<tr>
<td>09:15</td>
<td>Robust DPF Diagnostics Enabled with Resistive PM Sensor</td>
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<td>- Resistive PM sensor performance characteristics</td>
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<td>- PM sensor required diagnostics to meet regulations</td>
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<td>- PM sensor trends</td>
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<td>Kayvan Hedayat, Director Advanced Technologies, Stoneridge Inc.</td>
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<td>09:45</td>
<td>Coffee break and opportunity for networking</td>
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<td>10:15</td>
<td>Real-Time Particulate Filter Soot and Ash Sensors</td>
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<td>- Soot and Ash Measurements in DPF/GPF</td>
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<td>- Sensor Performance Data</td>
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<td>- Applications and After-treatment Optimization</td>
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<td></td>
<td>Dr. Alexander Sappok, President, Filter Sensing Technologies Inc.</td>
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<td>10:45</td>
<td>Coffee break and opportunity for networking</td>
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<td>11:15</td>
<td>Sensor tolerances of the EA with regard to the OBD-robustness</td>
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<td>- Influence of sensor tolerances on OBD-robustness</td>
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<td>- Cumulated influence of linked tolerances</td>
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<td>- SW tool chain for OBD-robustness analysis</td>
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<td>Marco Moser, Design Engineer Diesel Exhaust Aftertreatment, IAV GmbH</td>
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<td>11:45</td>
<td>The influence of the efficiency increase of drives on the diagnosis of the exhaust gas system</td>
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<td>- CO₂ reduction by means of more efficient drives</td>
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<td>- Influence on the diagnosis (OBDIII)</td>
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<td>- Cloud-based diagnosis strategies</td>
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<td>Matthias Weber, Business Development Powertrain Solutions, Continental Engineering Services GmbH</td>
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<td>13:15</td>
<td>PEMS and RDE change the world of emissions</td>
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<td>- RDE</td>
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<td>- WLTP</td>
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<td>- Correlation to the roll</td>
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<td>Pascal Mast, Head of Department, TÜV SÜD Auto Service GmbH</td>
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<td>13:45</td>
<td>Exhaust gas analysis utilizing FTIR technology</td>
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<td>- Introduction to FTIR technology/Adaptation for use in the vehicle</td>
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<td>- Advantages of the FTIR in comparison to conventional exhaust gas analysis devices</td>
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<td>- Comparison of FTIR measurements using conventional methods and using test stand results</td>
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<td>Dr. Jürgen Bredenbeck, Managing Director, A&amp;D Europe GmbH</td>
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<td>14:15</td>
<td>Coffee break and opportunity for networking</td>
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<td>14:45</td>
<td>Status of the microwave–supported catalyst condition recognition</td>
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<td>- New and direct ways of measuring catalysts without detours</td>
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<td>- Electrical characteristics of the catalyst component during operation</td>
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<td>- Replacement system for soot sensors, O₂ sensors, NOx sensors or NH₃ sensors?</td>
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<td>Prof. Dr. Ralf Moos, Head of the Faculty, Bayreuth Engine Research Center (BERC), University Bayreuth</td>
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<td>15:15</td>
<td>Monitoring system for sensor data in test stands, stationary engines, vehicle testing</td>
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<td>- Communication and energy management</td>
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<td>- Visualization and potential</td>
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<td>Eberhard Baur, Managing Director, eb-i Eberhard Baur Informatik</td>
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<td>15:45</td>
<td>Final discussion/End of the specialist conference</td>
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## BASIC PRINCIPLES OF EXHAUST GAS SENSOR TECHNOLOGY

**Professional supervision**
Stefan Carstens, Managing Director, EngineSens Motorsensor GmbH

**Objective**
This seminar mediates the basic essentials regarding the most important sensors and their functions. Stefan Carstens underpins theory with numerous practical examples so that, subsequent to this introduction day, you will know the main terminology and interrelations, and will be up to date on the science and technology concerned.

<table>
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<tr>
<th>Time</th>
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| 08:00 | Welcome reception, including coffee and tea  
Hand-out of the conference material |
| 08:15 | Start of the seminar and moderation  
Stefan Carstens, Managing Director, EngineSens Motorsensor GmbH |
| 08:30 | Application of exhaust gas sensors  
» When to use which sensor  
» Gasoline engines with stratified charge and NO, trap  
» Diesel with NO, trap and DPF  
» Diesel with DPF and SCR |
| 09:15 | Exhaust gas temperature sensor systems  
» PT200 sensors in combined thin-film and thick-film technology  
» NTC sensors: Special features of the characteristic curve  
» Thermo elements function  
» Characteristics of test stand applications  
» Thermo elements type N in series vehicles, especially suitable for high-temperature applications with more than 1000 degrees Celsius |
| 10:45 | Oxygen sensors  
» Step-response lambda sensor: From the finger-shaped sensor to planar technology  
» Lambda sensors based on zirconia  
» Broadband lambda sensor: basic functions  
» Super-fast-light-off technology |
| 12:15 | Lunch break |
| 13:15 | Nitrogen oxide sensors  
» Can NO be measured in rich exhaust gas?  
» Pump currents Ip1 and Ip2  
» Cross-sensitivities and restrictions during application |
| 14:30 | Pressure sensor systems for particle filter monitoring  
» Differential pressure sensors – The state-of-the-art today?  
» Absolute pressure sensors – Too imprecise for Euro 6-2? |
| 15:15 | Soot sensor systems  
» Which concepts are possible?  
» Three different concepts  
» Already in mass production: The resistive soot sensor: Design and function |
| 16:00 | Discussion and time for questions |
| 16:15 | Departure (by bus) to the guided company tour  
at HE System Electronic GmbH & Co. KG  
Manufacturer of automotive sensor solutions: Hydrogen Sensors, Ion Current Ignitions, Glow Plug Control  
www.he-system.com |
| 18:30 | Casual dinner at a restaurant |
| 21:00 | Return to the Congress Hotel Mercure Nürnberg an der Messe |
Addition

Additional SVV Announcements

The latest legal topics for automobile suppliers
03 - 04 March 2015 in Munich

International Trade Conference Automotive Electronics
10 - 11 March 2015 in Shanghai

10th Specialist Conference: Ramp Up – Launch management in the automobile production
17 - 18 March 2015 in Leipzig

3rd International Specialist Congress: Wiring systems in automobiles
24 - 25 March 2015 in Ludwigsburg

Seminar: Pricing – Profit lever no. 1
26 March 2015 in Munich
29 April 2015 in Stuttgart

6th Specialist Congress: Technical cleanliness in assembly and production processes
19 - 20 May 2015 in Steyr

19th International Specialist Congress: Advances in automobile electronics
23 - 24 June 2015 in Ludwigsburg

Specialist Conference: Robots in the automobile industry
27 - 28 October 2015 in Augsburg

Practical Seminar
Emissions Legislature and Analysis
in the automobile industry
(including practical session at test stand)

24 and 25 February 2015 | Heimsheim
or 22 and 23 April 2015 | Pfungstadt

Seminar chair:
Stefan Carstens, Managing Director
EngineSens Motorsensor GmbH

Pascal Mast,
Senior Head of Emissions Department
TÜV SÜD Auto Service GmbH

CORE TOPICS

» Exhaust gas composition in gasoline and diesel engines
» EU exhaust gas legislature: NEDC, WLTC, EURO6b and EURO6c
» US exhaust gas legislation: CARB, EPA, LEV–III
» Test stands in the vehicle and engine measurement technology

SEMINAR CONTENTS

This is the first seminar of its type in Germany regarding emission legislature and analysis with an integrated practical session on a test bench. This unique offer is made possible thanks to the close cooperation of TÜV SÜD (Technical Inspectorate, Southern Germany) Auto Service GmbH, EngineSens Motorsensor GmbH and Süddeutscher Verlag Veranstaltungen GmbH.

Over two days, special topics regarding exhaust gas composition, national and international exhaust gas legislature and the current test bench technology will be addressed. The program is supplemented and rounded off by the practical elements: NEDC, WLTP and measurement technology on a roller test bench.

LEARNING OBJECTIVES

Following this seminar, you will know about the exhaust gas composition for gasoline and diesel engines and will be up to date on the exhaust gas legislation in the EU and the USA. You will learn about the differences between NEDC and WLTP, especially the shifting point calculation.

Furthermore, you will receive an introduction into test benches for vehicle and engine measurement technology. The main focus in February is on the roller test benches. The main focus in April is on the engine test benches. Increase your knowledge and expand your wealth of experience with experts from your branch.

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DATE OF THE EVENT
Wednesday, 24 and Thursday, 25 June 2015

Additional offer: Seminar: Basic principles of exhaust gas sensor technology on 23 June 2015!

VENUE
Congress Hotel Mercure Nürnberg an der Messe
Münchener Straße 283
90471 Nürnberg
Tel.: +49 911 9465-0
Fax: +49 911 9465-777
h2924@accor.com
www.mercure.com
Single room: from 125 € including breakfast

ACCOMMODATION
Please book your room directly at the hotel, stating the key word “SW”.

Please observe:
A number of rooms are reserved for you until 27 April 2015. Reservation after this date will be subject to availability.

PARTICIPATION FEE
The participation fee for the International Specialist 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 a restaurant
- Guided company tour at HE System Electronic GmbH & Co. KG on 23 June 2015*
- Guided city tour in Nuremberg on 24 June 2015*

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 815.101.17)

In case of cancellation after the cancellation deadline (5 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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Fax: +49 8191 125 97-104
jana.bumann@sv-veranstaltungen.de

Sponsoring and Specialist Exhibition
Teresa Knöferl
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Fax: +49 8191 125 97-573
teresa.knoeferl@sv-veranstaltungen.de
www.sv-veranstaltungen.de

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* Number of participants is limited
I hereby bindingly register for the Specialist Conference (815.101.17):

☐ 2nd International Specialist Conference: Sensors for Exhaust Gas Cleaning and CO₂ Reduction (24 + 25 June 2015) at the price of 1,695 € plus statutory VAT
☐ Seminar: Basic principles of exhaust gas sensor technology (23 June 2015) at the price of 895 € plus statutory VAT
☐ Seminar: Basic principles of exhaust gas sensor technology (23 June 2015) + 2nd International Specialist Conference (24 + 25 June 2015) 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 HE System Electronic GmbH & Co. KG (23 June 2015)
☐ City tour Nuremberg (24 June 2015)

Please send the invoice to:

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☐ By email  ☐ By post

Legally binding & authorized email account for receipt of invoice

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