

4<sup>TH</sup> INTERNATIONAL SPECIALIST CONFERENCE

# SENSORS

for Exhaust Gas Aftertreatment and CO<sub>2</sub> Reduction

SIMULTANEOUS  
INTERPRETATION



28 and 29 June 2017 – Augsburg  
incl. factory tour at MAN Diesel & Turbo



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## EXCERPT OF SPEAKERS



**ADZ NAGANO  
GmbH**  
Hannes Georgi



**CTS  
Corporation**  
Dr. Alexander  
Sappok



**AVL List GmbH**  
Dr. Michael  
Arndt



**Deutsches  
Patent- und  
Markenam**  
Dr. Bettina  
Kuhn



**Bayreuth  
Engine  
Research  
Center (BERC)**  
Prof. Dr.  
Ralf Moos



**TE Connectivity**  
Souhail Chreif

## TOP SUBJECTS

- State-of-the-Art  
Sensor Technology:
- » Pressure & Temperature
  - » Radio-Frequency-Sensors
  - » Nitrogen Oxide & Ammonia
  - » Multi-Gas-Sensing
  - » Soot & Filter Loading
  - » Implementation of Sensors in ECUs & OBD

## CONFERENCE CHAIR



**EngineSens  
Motorsensor  
GmbH**  
Stefan  
Carstens

# BASIC PRINCIPLES OF EXHAUST GAS SENSOR TECHNOLOGY

27 June 2017 – Augsburg

## TECHNICAL SUPERVISION

Stefan Carstens, Managing Director,  
EngineSens Motorsensor GmbH



## OBJECTIVES

The seminar will teach attendees 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, attendees 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 Reception with coffee & tea and distribution of the seminar documents

### 09:15 Opening

EngineSens Motorsensor GmbH:  
Stefan Carstens, Managing Director

### 09:30 Applications for exhaust gas sensors

- » Where is each type of sensor used?
- » Diesel with NO<sub>x</sub> 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 & networking

### 11:45 Oxygen sensors

- » Step response lambda sensor: from simple type sensors to planar technology
- » Lambda sensors based on zirconia
- » Broadband lambda sensor: oxygen-reference solutions and pumped sensors
- » Superfast light-off technology

01:15 Lunch & networking

### 02:15 Nitrogen oxide sensors

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

### 03:30 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

04:15 Coffee break & networking

### 04:45 Soot sensor systems

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

### 05:30 Gas sensors

- » Possibilities for fulfilling the OBD-requirements for HC
- » Sensor arrays
- » Mixed potential sensors

06:15 Time for questions & discussion

06:30 End of the seminar



08:30 Reception with coffee & tea and distribution of the conference documents

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

09:15 **Deutsches Patent- und Markenamt**  
**From the first idea to a patent – exhaust gas sensors**  
Dr. Bettina Kuhn, Patent Examiner



09:45 **Schlegel und Partner GmbH**  
**The future market for emission control sensors**  
Dr. Karsten Wasiluk, Assistant Director Automotive & Transportation



## TEMPERATURE-SENSORS

10:15 **CMR-Group**  
**New sensor technology for exhaust gas temperature**  
Patrice Flot, Chief Technical Officer



10:45 Time for questions & discussion

11:00 Coffee break & networking

## LAMBDA-SENSORS

11:30 **FRANCISCO ALBERO S.A.U.**  
**Air Fuel Ratio Sensor**  
Dr. Francisco Ramos, R&D Manager



## NO<sub>x</sub>-SENSORS

12:00 **CARIT Automotive GmbH & Co. KG**  
**Development of a new NO<sub>x</sub>-Sensor for OEM and Retrofit applications**  
Dirk Bleicker, Head of Research & Development



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12:30 Time for questions & discussion

12:45 Lunch & networking

02:00 **MAHA Maschinenbau Haldenwang GmbH & Co. KG**  
**New Emission Testing under Load at Buenos Aires City incl. NO, NO<sub>2</sub> and PM**  
Antonio Multari, Director International Sales



## CYLINDER-PRESSURE-SENSORS

02:30 **Hidria AET d.o.o.**  
**In-Cylinder pressure sensing technology by Hidria**  
Peter Ursic, Head of R&D



03:00 Coffee break & networking

03:30 Departure by bus to the factory tour at MAN Diesel & Turbo

04:00 Start of the guided factory tour

06:00 End of the factory tour and return by bus

06:30 Start of the evening event at Riegele Wirtshaus, Frölichstraße 26 in Augsburg



10:00 End of the 1<sup>st</sup> conference day and return to hotel



Take advantage of our early bird fee with a discount of **100 €** for registration until **1 April 2017!**

08:45 **Welcome and opening** of the 2<sup>nd</sup> conference day  
 EngineSens Motorsensor GmbH:  
 Stefan Carstens, Managing Director

## COMBINATION-SENSORS

09:00 **TE Connectivity**  
 Humidity, temperature and pressure sensing for engine and exhaust gas management  
 Souhail Chreif, Product Manager for ICT Engine Sensors



## RADIO-FREQUENCY-SENSORS

09:30 **Bayreuth Engine Research Center (BERC)**  
 SCR Control using Radio Frequency Sensors  
 Prof. Dr. Ralf Moos, Head of Chair and Spokesman



10:00 **CTS Corporation**  
 Particulate Filter On-Board Diagnostics and Prognostics using Radio Frequency Sensors  
 Dr. Alexander Sappok, Director RF Sensors



10:30 Time for questions & discussion

10:45 Coffee break & networking

## SOOT-SENSORS

11:15 **AVL List GmbH**  
 Photoacoustic measurement of soot in combustion exhaust  
 Dr. Michael Arndt, Senior Application Engineer



## DIFFERENTIAL PRESSURE SENSORS

11:45 **ADZ NAGANO GmbH, Gesellschaft für Sensortechnik**  
 Use of a differential pressure sensor for particle filter monitoring  
 Hannes Georgi, Head of R&D



12:15 Time for questions & discussion

12:30 Lunch & networking

## SENSORFUSION AND VIRTUAL SENSORS

02:00 **IAV GmbH**  
 Simulative Assessment of Tolerance Limits of new Sensor Concepts for Controls and OBD  
 Marco Moser, Development Engineer OBD



02:30 **IAV GmbH**  
 Building a virtual sensor by machine learning  
 Dr. André Bojahr, Data Scientist



## GAS-SENSORS

03:00 **MEMS AG**  
 Micro-thermal gas quality measurement for field applications  
 Dr. Daniel Matter, Managing Director



03:30 Concluding discussion

04:00 End of the 4<sup>th</sup> International Specialist Conference Sensors for Exhaust Gas Aftertreatment and CO<sub>2</sub> Reduction

**SIMULTANEOUS INTERPRETATION ON BOTH CONFERENCE DAYS**



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## CONFERENCE DATE

Seminar Basic principles of exhaust gas sensor technology

**Tuesday, 27 June 2017**

4<sup>th</sup> International Specialist Conference: Sensors for Exhaust Gas Aftertreatment and CO<sub>2</sub> Reduction

**Wednesday and Thursday, 28 and 29 June 2017**

## CONFERENCE VENUE

**Dorint an der Kongresshalle Augsburg**

Imhofstraße 12

86159 Augsburg

P.: +49 821 5974-5974

Fax: +49 821 5974-100

info.augsburg@dorint.com

www.dorint.com

Single room: as of 130 € incl. breakfast

## ACCOMODATION

Please place your reservation directly with the hotel using the code word "SV Veranstaltungen".

**Please note:** We will set aside a number of rooms for you until 26 May 2017. Any bookings after this date can only be considered according to availability.

## PARTICIPATION FEE

Seminar + Conference

2,295 € plus VAT

Conference without Seminar

1,695 € plus VAT

Only Seminar

895 € plus VAT

Services for conference participants:

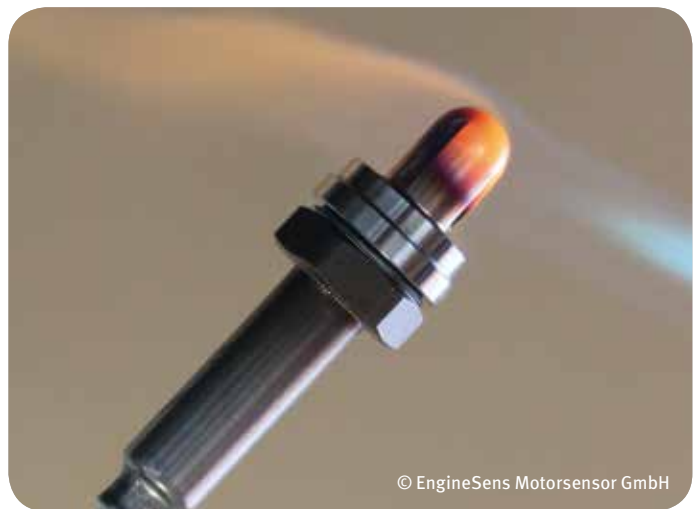
- » Conference documents
- » Refreshments in the breaks
- » Lunch on both conference days
- » Factory tour at MAN Diesel & Turbo incl. bus transfer (Limited number of participants)
- » Joint evening event on the first conference evening

## REGISTRATION

Please register using the attached registration coupon or via the internet at [www.sv-veranstaltungen.de](http://www.sv-veranstaltungen.de). Upon reception of your written application you will be registered as a participant and get a written confirmation as well as an invoice, which is to be settled before the start of the event. (Event number 817.101.17)

In case of a cancellation after the cancellation period (12 June 2017) or in case of non-participation, the full participation fee will be charged; However, a substitute participant may be appointed. Cancellations before this date will be charged with 150 € plus VAT for administrative efforts. Any cancellations shall be made in writing.

The organiser reserves the right to shift the entire event or parts thereof as regards the venue and/or the time, to amend the same or to cancel it at short-term notice.



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## ORGANISED AND CONDUCTED BY



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**Project Manager**

**Automobile & Industrial Technology**

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# 4<sup>TH</sup> CONFERENCE: SENSORS FOR EXHAUST GAS AFTERTREATMENT

28 and 29 June 2017 – Augsburg  
incl. factory tour at MAN Diesel & Turbo

## SPECIALIST COUNCIL



**CONFERENCE CHAIR**  
**EngineSens Motorsensor GmbH**  
Stefan Carstens



**MAN Diesel & Turbo SE**  
Konstantin Eberle



**IAV GmbH**  
Marco Moser



**MTU Friedrichshafen GmbH**  
Martin Rabold

## ADDITIONAL SEMINAR

### Basic Principles of Exhaust Gas Sensor Technology

Essential knowledge about the key sensors and their function.

27 June 2017 – Augsburg  
9:00 a.m. – 6:30 p.m.

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

**Registration** | Online on [www.sv-veranstaltungen.de](http://www.sv-veranstaltungen.de) – email: [register@sv-veranstaltungen.de](mailto:register@sv-veranstaltungen.de)

- 4<sup>th</sup> International Specialist Conference Sensors (817.101.17)  
28 and 29 June 2017: 1,695 € plus VAT
- Two in One: Seminar Basic Principles of Exhaust Gas Sensor Technology +  
4<sup>th</sup> International Specialist Conference Sensors  
27 to 29 June 2017: 2,295 € plus VAT
- only Seminar Basic Principles of Exhaust Gas Sensor Technology  
27 June 2017: 895 € plus VAT
- Please send us information on **exhibition and sponsoring possibilities free of charge** and without any obligation.

100 € early bird discount:  
until 1 April 2017

20% discount

All prices plus VAT – discounts cannot be combined.



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**SV** Veranstaltungen

### Sponsoring & Specialist Exhibition

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