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### 2008 Clean Snowmobile Challenge



Sensors recently demonstrated real-time emission measurements on the trail during the SAE Clean Snowmobile Challenge at the Keweenaw Research Center (KRC) in Hancock, Michigan. The facility is a research arm of Michigan Technological University and the home of this SAE student competition.



This year, seventeen teams competed in events that were judged in several categories including noise, handling, fuel economy, emissions and other areas of interest to the buying public. Starting in 2009, Sensors will sponsor a new judged event to determine the best overall in-use emissions performance. KRC and Sensors are developing a test cycle capable of evaluating any

snowmobile regardless of whether they are 2-stroke or 4-stroke, gasoline or diesel. The ultimate goal of the competition is to educate students in real world emission measurement.

Snowmobile testing presents a unique set of challenges including extreme temperatures, shock and vibration. To meet these challenges, Sensors designed and built a unique snowmobile sleigh which allows SEMTECH-DS and accessories to operate under the harsh conditions found in Michigan's Upper Peninsula. With this demonstration, Sensors opens up the possibility of measuring emissions from all recreational vehicles, including ATV's.

Sensors looks forward to working with industry, government agencies and academia to further promote and support this testing. Please contact Dave Kalen at (734) 429-2100, or [dkalen@sensors-inc.com](mailto:dkalen@sensors-inc.com) for further information regarding your testing requirements.



## Mississippi State University Students Win Challenge X 2008 Competition!



Mississippi State University won the 2008 Challenge X competition for the second consecutive year with a vehicle that achieved a remarkable 38 percent increase in fuel economy.

Second place honors were awarded to the students at the University of Wisconsin, and third place went to Ohio State University.

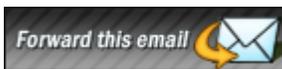


Challenge X is a competition series created by automotive industry, government, and academic partners that challenges university-level engineering students to decrease total energy consumption and emissions in a crossover vehicle, while maintaining or exceeding vehicle utility and performance.

The competition is modeled after the General Motors (GM) Global Vehicle Development Process and closely follows current real-world automotive design and engineering practices. The Challenge X program was launched in the 2004-2005 academic year as a three-year program. This year marked the culmination of the program, with seventeen student teams from selected university-level engineering programs across North America delivering their modified GM Equinox sedans.

Year One of the program (2004) focused on vehicle simulation, modeling and subsystem development, and testing. In years Two and Three, students tested the reliability and durability of their advanced propulsion systems by conducting real-world evaluations at GM proving grounds. The seventeen teams that participated in Challenge X are: Michigan Technological University; Mississippi State University, Ohio State University; Pennsylvania State University; Rose-Hulman Institute of Technology, San Diego State University, Texas Tech University; University of Akron; University of California, Davis; University of Michigan; University of Tennessee; University of Texas at Austin, University of Tulsa, University of Waterloo, University of Wisconsin; Virginia Tech; and West Virginia University.

Sensors, Inc. is a proud Gold Sponsor of this event. SEMTECH Account Executive, Dave Kalen and Senior Technician, Louis Moret, worked directly with each team to collect accurate on-road emissions using the SEMTECH-DS mobile emission analyzer and its accessories.



## MotorWeek

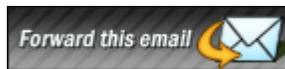


Recently Sensors was contacted by the producers of MotorWeek for assistance with their "real-world" fuel economy comparison test for air on the PBS series in May.

Using the SEMTECH-DS mobile emission analyzer, data was collected from hybrid, gasoline and E85 vehicles. As expected the hybrid vehicles had better fuel economy than the gasoline or E85 fueled vehicles. However, E85 is cleaner overall and is a sustainable resource. Vehicles

tested included the Honda Civic, Hybrid and EX Sedan; and the Chevy Tahoe 2 Mode Hybrid and gasoline powered Tahoe.

To view the program, visit the web site at [www.motorweek.com](http://www.motorweek.com). Click the ON THE AIR tab and scroll down to past shows. Scroll down the page to MotorWeek Show number 2735 to see the show.



### California ARB Showcase to Demonstrate Diesel Emission Control



In 2000, the California Air Resources Board (ARB) established a goal of reducing diesel particulate matter (PM) from virtually all in-use diesel engines in California by enacting the Diesel Risk Reduction Plan.

To help achieve the goals established by this plan, ARB promulgated a regulation that required the retrofit of in-use diesel, off-road equipment with verified Diesel Engine Control Strategies, (DECS) designed to control diesel PM and/or NOx. In anticipation of the need for additional DECS, ARB in conjunction with the South Coast Air Quality Management District, and the Mobile Source Air Pollution Reduction Review Committee organized an Off-Road DECS Showcase project. Stakeholders include other local air pollution control districts in California, US EPA, device manufacturers and fleet operators.

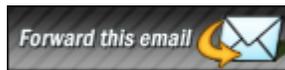


The goal of the Showcase project is to generate valuable operational data from retrofitted off-road equipment which will enable device manufacturers to verify their devices in California and achieve early reductions in off-road equipment emissions.

To better assess the effectiveness of the program, ARB has contracted Sensors, Inc. to provide emissions test equipment capable of assessing the improvements that can be realized with the retrofit technologies in situ. The unique system provided to ARB integrates SEMTECH-DS technologies for the measurement of CO, CO<sub>2</sub>, NO, NO<sub>2</sub> and THC with standalone, off-the-shelf analyzers which also provide size distribution estimates of PM. The system is encased in an environmental housing capable of withstanding the harsh conditions in which construction, agricultural and other off-road equipment is used.

For additional information about this program, contact Dave Kalen, SEMTECH Account Executive at (734)-429-2100 ext 216 or via email at [dkalen@sensors-inc.com](mailto:dkalen@sensors-inc.com) or Rob Wilson, Vice President, Sales & Marketing at [rwilson@sensors-inc.com](mailto:rwilson@sensors-inc.com).

*Excerpted from ARB Announcement dated December 22, 2006*



### 2008 SEMTECH USER NETWORK (SUN) CONFERENCE

**THE DATES ARE SET!**  
**SEPTEMBER 25TH & 26TH, 2008**

We are now accepting reservations for the 2008 SEMTECH USER NETWORK (SUN)

Conference.

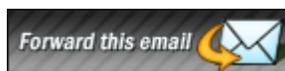
**PRELIMINARY AGENDA TOPICS INCLUDE:**

- 2007 Regulatory Overview
- Status of the PM Measurement Allowance Program
- Update on the National PEMS Deployment
- CARB "Showcase" Project Update
- Testing of SCR Systems
- European Programs
- PEMS Activities in China
- PEMS Activities in Japan
- SEMTECH PPMD
- SEMTECH Field Experience
- SEMTECH Correlation Data
- LSI Opportunities
- Locomotive/Agricultural Applications
- Testing Recreational Vehicles
- HD Applications Case Study
- Smartway and Fuel Economy
- Challenge X Update

Call Cathie Abad at (734)429-2100 ext. 226 or send an email to [cabad@sensors-inc](mailto:cabad@sensors-inc) to reserve your spot at the conference today.

To make hotel reservations contact the Four Points Sheraton, Ann Arbor directly by calling (734) 996-0600. Be sure to mention that you are with the Sensors SUN Conference.

The hotel is located at:  
3200 Boardwalk  
Ann Arbor, MI 48108  
For more information, the hotel web site is:  
<http://www.fourpointsannarbor.com>



**Sensors Invites You to an Open House!**

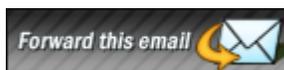
Sensors is hosting an Open House on Friday, August 1, 2008 from 1:30 p.m to 5:30 p.m. Come and tour our facility, meet and greet Sensors staff and see our in-use emissions systems in operation:

- In-use gaseous emissions measurement using SEMTECH-DS
- Particulate Mass measurement using the PPMD
- High speed exhaust flow measurement using the EFM



In addition, we will have various vehicles on hand to demonstrate in-use applications including our snowmobile sleigh (see story above) and trailer.

For additional information contact Cathie Abad at (734) 429-2100 ext. 226 or via email at [cabad@sensors-inc.com](mailto:cabad@sensors-inc.com). Light refreshments will be served throughout the afternoon. Give us a call if you plan to attend, we think you'll find this a very informative afternoon.



#### Upcoming Events

##### **5TH INTERNATIONAL CTI FORUM: DIESEL PARTICULATE FILTER**

Stuttgart, Germany

1 - 2 July

##### **14th DIESEL ENGINE-EFFICIENCY & EMISSIONS RESEARCH (DEER) CONFERENCE**

Dearborn, Michigan USA

4 - 7 August

##### **SMALL ENGINE TECHNOLOGY CONFERENCE**

Milwaukee, Wisconsin, USA

9 -11 September

##### **FISITA 2008 WORLD AUTOMOTIVE CONFERENCE**

Munich, Germany

14 -19 September

##### **CIMAC CIRCLE 2008: EFFICIENT AND CLEAN SHIP TRANSPORTATION What are the Technical Solutions?**

Hamburg, Germany

25 September

##### **2008 SEMTECH USER NETWORK CONFERENCE**

Ann Arbor, Michigan USA

25 - 26 September

##### **2008 SAE INTERNATIONAL POWERTRAINS, FUELS & LUBRICANTS MEETING**

Dearborn, Michigan USA

25 - 26 September

##### **MINING DIESEL EMISSIONS CONFERENCE (MDEC)**

Toronto, Ontario Canada

6 - 9 October

##### **WORLD POWERTRAIN CONFERENCE**

Chicago, Illinois USA

25 - 26 September

##### **AUTOMOTIVE TEST EXPO - NORTH AMERICA**

Novi, Michigan USA

22 - 24 October

### **15TH ASIA PACIFIC AUTOMOTIVE ENGINEERING CONFERENCE (APAC-15)**

Hanoi, Vietnam

22 - 26 October

### **GIE + EXPO 2008 GREEN INDUSTRY & EQUIPMENT EXPO**

Louisville, Kentucky USA

23 - 25 October

### **POWER-GEN INTERNATIONAL CONFERENCE**

Orlando, Florida

2 - 4 December

#### **New Staff Additions**

Sensors is pleased to announce our latest staff additions:

#### **Joerg Siebler, Vice President of Engineering**

Joerg brings a wealth of experience and technical expertise to the position, previously holding engineering, product development and business development positions with PEUS-Systems GmbH, and AVL List North America. He has a history of building close relationships with customers to provide products and services that meet their specific needs throughout the product life cycle. He is equally comfortable in emissions environments ranging from small off-road engines to heavy duty on-road vehicles, either in a test cell, end-of-production-line or in the field.

#### **Allen Dryer, Vice President of Operations**

Allen is responsible for the manufacturing operations, quality assurance and customer service. Prior to joining Sensors, Inc, Allen has held the position of Group Vice President, Manufacturing and Engineering Services for MSX International. He has a proven leadership track record for maximizing EBIT performance and overall operational efficiency in start-up, turnaround and rapid growth for diverse manufacturing companies.

We look forward to introducing Joerg and Allen to our customers.

#### **About Sensors**

Over the past 39 years, Sensors built its reputation worldwide in the design and manufacture of high-quality vehicle emission analyzers. Today we are the leading manufacturer of both Inspection and Maintenance (I/M) analyzers and laboratory grade, in-use emissions test systems. Using proprietary analytical techniques, Sensors products accurately measure all criteria pollutants emitted by internal combustion engines, whether generated in a test cell, on the production line or under real-world operating conditions. Our ruggedized systems make accurate, repeatable measurements under harsh conditions that often exclude other alternatives.

Today, Sensors' SEMTECH emission products are deployed by several major regulatory agencies for the measurement of CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, THC, NMHC, O<sub>2</sub> and Particulate Mass. Governmental agencies using our products include: EPA, CARB and NY DEC in the US, JRC in Europe, NTSEL in Japan and EPD in Hong Kong.

For more information visit our website at [www.sensors-inc.com](http://www.sensors-inc.com).

### ***Editor's Note:***

Sensors welcomes our readers' input and suggestions regarding the content of this newsletter. If you have article suggestions or topics you would like to see included in Clear Skies News please contact the editor Cathie Abad, Sales & Marketing Administrator at [cabad@sensors-inc.com](mailto:cabad@sensors-inc.com) or by calling (734) 429-2100 ext. 226.

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