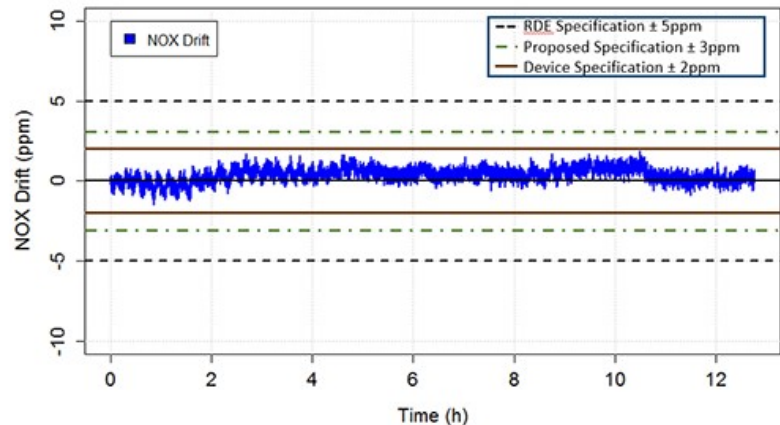


ClearSkies News

June 2021 Edition

SENSORS INTRODUCES NEW NO_x MEASUREMENT SOLUTION



In anticipation of continually evolving environmental and regulatory requirements, Sensors, Inc. is pleased to introduce its new NO_x measurement solution, which offers major improvements over current NO_x measurement technologies.

Major enhancements include:

- Reduced zero drift: ≤ 1 ppm over $\pm 10^{\circ}\text{C}$ for up to 4 hours (previously ≤ 5 ppm over $\pm 10^{\circ}\text{C}$ for up to 4 hours).
- Enhanced low range accuracy: ± 1 ppm at 0 - 50 ppm.
- Reduced warmup time (45 minutes from 120 minutes).
- Operating temperature window of -15°C to 50°C (from -10°C to 45°C).
- Rise time of ≤ 1.5 seconds.

- Improved source durability.

The new device is a robust optical gas analyzer capable of measuring NO and NO₂ over a wide range and under extreme environmental conditions. The light source, folded-path gas cell, detector, and all associated optics are built into a strong but lightweight precision optical assembly which maintains optical alignment and gas sensitivity under vibration and rapid thermal cycling. The new NO_x analyzer achieves excellent accuracy and zero drift in a lightweight PEMS unit, all while maintaining the simple user interface of the previous generation NDUV.

Portable Emissions Measurement Systems (PEMS) have been required to provide reliable testing under the harshest environmental conditions for decades. Ambient temperatures ranging from -10°C to as high as 45°C are not unusual, and instruments must be capable of managing rapid temperature changes as well. Performing to



current exacting standards of Euro VI/6 under these conditions is challenging, and this will likely be exacerbated by new standards expected from the European Commission over the next few years. The Commission is focused on the staged evolution of Euro VI/6 to Euro VII/7 with the goal of reducing conformity factors to 1.0. In furtherance of this goal, a report by the Joint Research Centre of the EU in 2021¹ suggests the NO_x zero drift of 5 ppm permitted in RDE should be reduced to 3 ppm. This will have a major impact on the performance required of PEMS and its manufacturers.

Table 1 demonstrates performance of the NO_x analyzer under extreme temperature cycling. The zero drift under these extreme conditions remains well below 2 ppm total NO_x.

Table 1. Maximum zero drift (ppm) observed during 3°C min⁻¹ temperature ramps

Condition	NO	NO ₂	NO _x
+25 °C to -10 °C	-0.5	0.6	0.2
-10 °C to +25 °C	-0.6	-0.6	-1.2
+25 °C to +50 °C	-0.2	-1.3	-1.5
+50 °C to +25 °C	0.1	0.0	0.1

“These significant improvements in performance are the result of several years of design and development, culminating in the release to manufacturing today,” states Jason Gaudet, Sensors’ Director of Advanced Engineering. “We are delighted to be able to offer this solution to new and existing SEMTECH[®] customers.”

The device is now available with new SEMTECH[®] DS+ systems and as an upgrade to existing SEMTECH[®] DS+ systems. Contact your SEMTECH[®] representative for further details.

¹ Giechaskiel B., Valverde V., Clairotte M., *Real Driving Emissions (RDE): 2020 assessment of Portable Emissions Measurement Systems (PEMS) measurement uncertainty*, EUR 30591 EN, Luxembourg: Publications Office of the European Union, 2021, ISBN 978-92-76-30230-8 (online), doi:10.2760/440720 (online), JRC124017.

CUSTOMER SPOTLIGHT ON HOLLEY PERFORMANCE PRODUCTS

Holley Performance Products needed assurance that their rebuild kits meet specifications promulgated by CARB and US EPA. For over a decade, Holley and its subsidiaries relied on Sensors’ SEMTECH[®] DS to satisfy this need. They recently expanded / upgraded facilities in four key locations across the country with SEMTECH[®] DS+ to



meet current testing requirements. An interview with Aaron Stewart, VP of Product Development (Utah) at Holley's Powerteq division cited the following advantages of SEMTECH® DS+...

- "SEMTECH® DS+ produces consistent results for our testing. It has greatly helped with the efficiencies of the calibration work."
- "Having the SEMTECH® DS+ has helped us work towards keeping our products compliant."
- "SEMTECH® tech support has been very responsive."
- "The mobility of the SEMTECH® DS+ is very adaptable to all of the applications we need to test."



Holley is a leading designer, marketer, and manufacturer of high-performance products for cars and trucks with over 60 brands and divisions including APR, DiabloSport, Dinan, Edge Products and Superchips.

They join the growing list of performance product manufacturers employing SEMTECH® DS+ in

increasing efficiency in the design and development of performance products and assuring compliance with regulatory requirements.

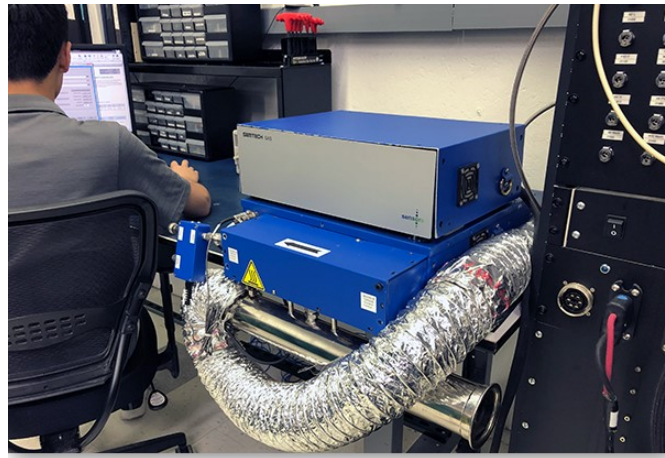
For more information about Holley, visit www.holley.com (<https://www.holley.com>).

SENSORS EUROPE - SERVICE DEPARTMENT

Located in Erkrath, Germany, Sensors Europe GmbH SEMTECH® service department is a skilled team capable of offering exceptional service for repair, annual maintenance, and calibration of customer instrumentation. The service facility has doubled in size in order to provide these increased services.

Our facilities are available for in house training or at customer location upon request. Specific training offerings include:

- Basic for new users
- Advanced for users with at least 3 months of experience
- Service and repair
- Data post processing (also available online)
- Advanced data post processing (also available online)



We work closely with our customers to assure that training programs are customized to customer requirements. Since 2020, we extended the services from the most commonly applied regulation EC 2018-1832 (RDE) to directives for EC 2019-1939 (HD) as well as EC 2018-989 (NRMM). Upon completion of each course, customers receive a Sensors' compliance certificate and a document summarizing their accomplishments.

Finally, Sensors Europe Service Department is able to provide ISO 17025 calibration certificates by accredited 3rd party laboratories for following devices:

- Condensation particle number (CPN) counter
- Exhaust flow meter
- Weather probe
- Pressure sensors sample conditioning system

For more detailed information and price offering, please feel free to contact semtechservice@sensors-europe.eu (mailto:semtechservice@sensors-europe.eu) or call +49 2104 141 88 0.

SENSORS TESTING SERVICES

Did you know Sensors Testing Services can assist in the following?

- Basic and Advanced PEMS Training
- Select Equipment Rentals
- Compliance Testing
- Fuel Economy Testing

- R&D Testing
- Data Recovery and Analysis

Whether in US or international, mobile or stationary sources, give Vio Filip a call at +1 734-295-9686 or email him at vfilip@sensors-inc.com (mailto:vfilip@sensors-inc.com) and find out how we can help you!

