

Welcome to the May 2021 issue of H2scan Sensor News. In this issue we present:

- Did you know...? (a new fun factoid feature)
- H2scan in Hydrogen Fuel News
- New: Analog output module for transformers
- Importance of real-time hydrogen monitoring in syngas
- Interview with H2scan Senior Director of Advanced Development
- Comparing “solid state Pd-Ni” versus “fuel cell” hydrogen sensors
- Hydrogen economy news bytes

Thanks for taking a look. Please reach out with any [questions](#).

Did you know...?

H2scan’s safety monitors are trusted to protect everything from nuclear reactors to rocket testing sites?

H2scan Article in Hydrogen Fuel News on Importance of Hydrogen Monitoring

Last month, H2scan’s Gid Herman, Director of Sales and Business Development, authored “Green Hydrogen is Booming, Real-Time Hydrogen Measurement is Key.” In the article, published at Hydrogen Fuel News, Gid explores the color-coded types of hydrogen, why real-time measurement is important and the types of technologies available for measuring hydrogen. Read the full article [here](#).



New Analog Output Module for Transformers is Coming

H2scan has been developing a new Analog Output Module for the GRIDSCAN™ 5000 transformer hydrogen sensor. With the new module, users will be able to change the oil type

and the analog output scaling without a computer. This will allow for easy retrofits since most electronic transformer monitors and relays have analog input capability. This new IP-68 module is scheduled to be available Q3 2021. Please contact sales@h2scan.com for more information.

Importance of Real-Time Hydrogen Monitoring in Syngas

Industry estimates are predicting that synthesis gas (syngas) may be priced competitively with fossil fuel as early as next year. And the market for syngas, an alternative energy fuel that can be made of waste gasses such as CO2 produced by power plants or factories, is expected to reach \$66.5 billion by 2027.

Syngas is composed mainly of carbon monoxide and hydrogen, with carbon dioxide sometimes also present. The most common use of syngas is for production of hydrogen. This makes hydrogen measurement critical in ensuring the quality of the syngas.

Historically, this process has been monitored either using a thermal conductivity device to measure hydrogen or by measuring the other gases present in order to indirectly derive the hydrogen measurement. This can result in costly inefficiencies in the process if the reaction is not taking place correctly. And delayed response time, complexity and maintenance requirements, and upfront and ongoing costs make gas chromatographs an unappealing option.

An inline process monitor though, combines the value and measurement speed of a thermal conductivity device with the accuracy of a gas chromatograph. By removing uncertainty and having data available in real time, the syngas process can be tightly controlled to ensure process optimization.

To learn about H2scan’s solutions for real-time hydrogen monitoring in syngas, download this [free application note](#).

Interview with Somesh Ganesh Ph.D., Senior Director of Advanced Development

What is a typical day like for you?

I start my day checking with our operations and sales teams as they progress with various orders and opportunities. I help them troubleshoot issues, aid in putting proposals together and provide updates on any open projects. In the later part of the day, I spend time with the R&D team and collaborators in planning and reviewing our progress in terms of new products and technology integration.

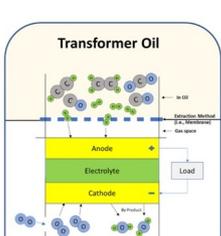
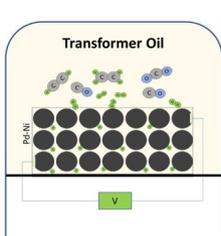
What excites you about the future of H2scan and / or the hydrogen economy?

Hydrogen is already heavily used in petrochemical markets and in production of valuable chemicals like methanol and ammonia. A lot of convergent factors like opportunities in the power-to gas market, advances in electrolysis technology, government regulations towards reducing reliance on fossil fuels have led to producing more affordable and readily available H2. These markets would greatly benefit from real-time, maintenance free hydrogen sensors.

There are also several markets that exist today that can really benefit from the high precision of our technology. The development of syngas is one of these. In the steel industry, the process of coke dry quenching – which uses gas to cool the steel in a much more environmentally beneficial way, is another one. They all need very high accuracy sensors.

H2scan with its latest Gen 5.0 product is poised to offer cutting edge hydrogen measurement that can auto calibrate in the process stream and is compatible with current IIoT 4.0 requirements for information transfer and integration with larger machine learning systems.

Thanks Somesh!



“Solid State Pd-Ni” versus “Fuel Cell” Hydrogen Sensors

The fuel cell sensor has been an effective combined gas technology that has not changed since the 80’s. The fuel cell measures 100% hydrogen plus

other gases with the support of a membrane to extract gas from oil. The fuel cell does not provide a hydrogen only value in the presence of other cross-sensitive gases.

In 2002 the solid state Pd-Ni hydrogen sensor technology was introduced to work directly in oil or in the gas space. Since 2002 and continuing into 2021 the solid state sensor continues to advance past the fuel cell based technology. The solid state advancements include a life expectancy of 2-3 times that of its fuel cell counterpart, directly in oil sensing reducing the number of measurement components needed (i.e. no membrane), support for multiple types of oil with the same sensor, and is an interaction-based sensor that includes autocalibration for the life of the sensor; whereas a fuel cell is a consumable-based sensor that acts like a battery. The solid state sensor has no significant cross-sensitivity to other gases improving the hydrogen accuracy compared to a fuel cell or other technologies.

For these reasons, most major transformer monitoring companies have or are moving to solid state Pd-Ni sensors in order to provide end users a more reliable and accurate hydrogen sensor.

For more information contact sales@h2scan.com.

Hydrogen Economy News Bytes

Chevron and Toyota in Hydrogen Economy

The two companies are working together to build businesses in hydrogen, collaborating on public policy around hydrogen infrastructure, understanding market demand for fuel cell vehicles and research and development of hydrogen transportation. [Learn more](#).

Germany’s Green Hydrogen Pipeline

Shell, RWE, Gasunie and Gascade are working on a pipeline that will transport hydrogen produced from wind to Germany. The pipeline is part of a bigger project that aims to pipe upwards of one million tonnes of green hydrogen annually by 2035. [Keep reading](#).

Fueling Hydrogen Powered Trucks

Nikola Energy and TravelCenters of America Inc. are collaborating on hydrogen fueling stations for heavy duty trucks at two locations in California, with a goal of commercial operation by Q1 2023. [Learn more](#).



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