


Case Study

# Protecting Hydrogen Energy Systems



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# Protecting Hydrogen Energy Systems – Hydrogen Sensors for Creo International

Ever wondered how our hydrogen sensors fit into the hydrogen economy? This case study tackles this question, diving into our latest project with Creo International.

Here we dive into who Creo Intl. are, why they need gas detection and our detectably better solution for the hydrogen energy industry. Creo representatives will also tell us what they think of our solution.



## Who are Creo International?

Creo Intl. are a green hydrogen system integrator, regularly installing a range of small and large systems for a variety of clients. From educational institutes and housing to large government funded research projects as well as supporting the National Grid, Creo's systems are completely scalable. Guaranteeing a suitable energy system for your application.

Their systems produce energy powered by green hydrogen, creating hydrogen from water through electrolysis powered by solar panels. Creo's systems can provide substantial financial and environmental benefits, emitting zero greenhouse gases making it a clean energy source. Creo are fully committed to providing a well-priced, flexible

and environmentally conscious energy systems, cementing themselves as pioneers of the energy industry and ensuring a greener future.

Both Creo and IGDs commitment to best environmental practices as well as keeping customers safe naturally made this a detectably better partnership.

With IGD's extensive research into the hydrogen economy and experience in providing flammable gas solutions for over a century. We were able to provide a detectably better solution for Creo's needs.

Check out the [Creo International Website](#) to find out more.

## Why Did Creo Need Hydrogen Detection?

Hydrogen detection was paramount for Creo to implement, preventing a potentially dangerous atmosphere and harm to their clients. Creo were looking for a hydrogen detection system that they could interface with their energy systems to stop the production of hydrogen in the event of a leak.

They were looking for a product with high sensitivity and RS485 capabilities, ensuring they could effectively integrate it into their existing EMS system. Creo required Hydrogen sensors that could withstand harsh weather, as the sensors would be placed outside with the energy generation devices in IP55 rated cabinets.

Creo also wanted a manufacturer of these devices that could demonstrate a breadth of knowledge in the gas detection industry to provide them with training on their devices.

## What are the Hazards of the Hydrogen Energy Industry?

Hydrogen is an extremely useful material in the energy industry. It is safer to handle than most natural gases used today due to its non-toxic nature and rapid dissipation upon release into the air ([Office of Energy Efficiency and Renewable Energy](#) 2023). However, it is still highly dangerous.

Although non-toxic by nature, hydrogen is highly flammable in the air at concentrations between 4% to 75% VOL. The energy required to ignite hydrogen is extremely low at just 0.017mj. To put this into context, the energy required to ignite gasoline in the air is 0.25mj.

With hydrogen being the smallest molecule in the universe, gas leaks are far more likely. This can make areas very dangerous extremely quickly if hydrogen sensors aren't implemented.

Find out more about the hazards of hydrogen on our [hydrogen gas page](#).



# IGD's Hydrogen Solution

IGD provided Creo with the [TOC-635 Plus](#) equipped with pre-calibrated [TOC-750 Safe Area](#) electrochemical hydrogen sensors and, [Beacon Sounders](#). Backed by over a century of knowledge in gas detection.

The TOC-635 Plus is the ideal solution for small applications, with its easy-to-use jog wheel format. The illuminated jog wheel and built in slam switch provide everything clients need in one place, making it simpler for clients to use with minimal training requirements.

What's more, its plug and play capabilities and, auto-system setup drastically decreases set up time. Making it possible to set up the gas detection system with just the click of a button.

The TOC-635-Plus can be equipped with IoT capabilities, allowing for remote alarm notifications and easy integration into existing BMS systems, ensuring our systems can seamlessly fit into any environment.



TOC-750 Safe Area Hydrogen sensors (pictured above) can detect extremely low levels, making them ideal for this application. Since Hydrogen can become flammable at very low levels, it is vital to ensure that in applications such as these that it is detected as soon as the leak occurs, as the smallest spark can cause an explosion. IGD'S 0-1000ppm Hydrogen sensors were ideal, as they can provide accurate detection at levels as low as 0.1ppm.





# Inside a Hydrogen Electrolyser 20' Storage Container from Creo International



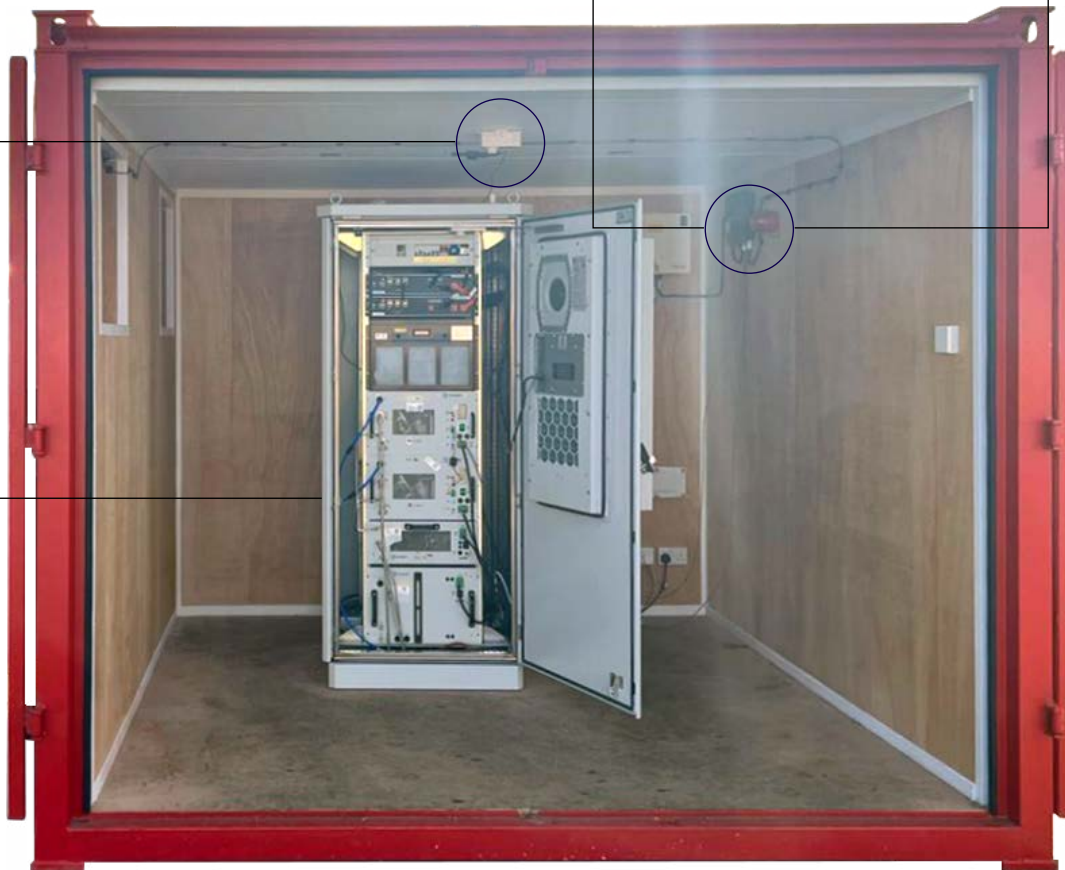
TOC-750 Safe Area Detector



TOC-635 Plus Control Panel



Beacon Sounder



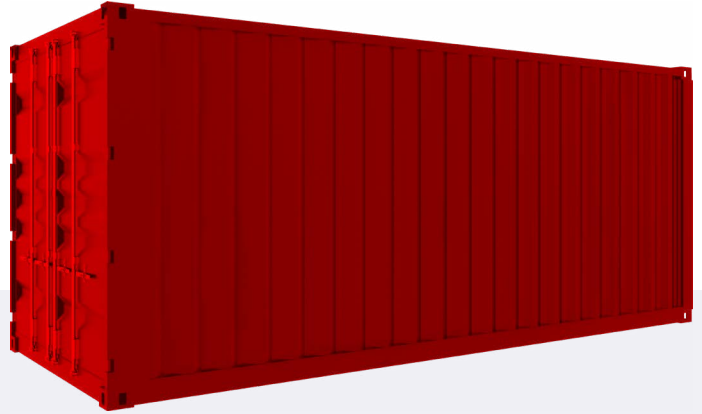
Green Hydrogen Power System by Creo International

"Our single modules can be grouped together, up to 70 in a 20' container. These systems are ideal for refuelling stations, industrial use and any other situations calling for large amounts of green hydrogen."

20' Shipping Container

## What was the Outcome?

After the solution was agreed upon by the IGD team, we provided Creo with our product manuals, installer's guides and datasheets. Creo were extremely happy with how simple the system was to install they decided to install the system themselves, saving the time and costs of hiring an installation team.



Brad Arnold, a Hydrogen Consultant at Creo International, had this to say about the system we provided:

*"Our search for a reliable, cost effective and simple H2 detection solution brought us to IGD. Their ultra responsive and helpful customer service, and technical teams were critical components in the seamless integration of their technology into our projects, ensuring the safe operation of our hydrogen systems for our clients."*

Since installation, Creo have been keen on keeping their gas detection knowledge up-to-date. Their team have been using our online academy to learn more about our 2-Wire addressable systems and the importance of gas detection. Ensuring their systems are always in working order and that their team are kept safe. Creo have begun attending gas detection maintenance courses provided by IGD to become an approved partner, allowing them to do their own installations on site.



### Need a gas detection system like this?

IGD have been manufacturing flammable gas detection for over a century and, are always at the forefront of gas detection expertise and technologies. Our team of experts have a breadth of experience, so you can find your custom solution at IGD.

We have a range of gas detection solutions available, from fixed to portable. With full service, training, support and installation straight from the manufacturer. Get in touch today to find out how IGD can help you become Detectably Better in your gas safety.