

# ITM POWER APPLICATION

## Analyzer performs vital role in Hydrogen fuel project

A highly-advanced Process Hydrogen Analyser from instrumentation specialist Quantitech is performing critical safety analysis in the UK's largest ever cross sector hydrogen vehicle refueling trial. The trials are being managed by Sheffield based energy storage and clean fuel company ITM Power, which has deployed an H2scan HY-OPTIMA™ 720 analyser as they undertake trials of the company's Transportable Hydrogen Refueling Station (HFuel); a self-contained module suitable for refueling hydrogen-powered road vehicles and forklift trucks.



HFuel generates hydrogen by electrolysis, compresses it, stores it and dispenses the gas on demand at high pressure. The refueler is currently being used across the UK for the company's Hydrogen On Site Trials (HOST), which has already experienced broad support from organisations such as UK local authorities, DHL, UPS, the RAC, Tarmac, Amey, May Gurney, Scottish Water and Stansted Airport.

Explaining the importance of the HY-OPTIMA™ 720 in the trials, ITM's Nick Hart said: "We primarily use the analyser to detect trace hydrogen crossover levels in the oxygen stream of our electrolyser stacks, to ensure that flammable gas mixtures are not formed. This serves as a sensitive gauge on stack integrity and is a key element of our rigorous systems testing." "This monitor was selected due to its high accuracy and stability in both oxygen and air environments and has been an important contributor to the success of our work."

in background gas streams having up to 95% relative humidity and temperatures up to 100°C. A vacuum pump is used to draw the source gas into the monitor and a vacuum regulator and flow meter are used to control the process stream to the sensor. It is capable of measuring gases from two alternate sources and of undertaking field calibration without removal from the system.

Highlighting the importance of being able to measure

hydrogen accurately in a mixture of other gases, Quantitech Managing Director Keith Golding said: "There are many applications for which hydrogen specific monitoring is important. These include health and safety, and process control within a wide variety of industrial applications such as petrochemical refineries, lead acid battery monitoring, chlorine manufacture, nuclear power/waste, fossil fuel power, chrome plating, research, semiconductor and electronics manufacture, abatement exhausts, transformer oil, fuel cell technologies and of course hydrogen production."

Commenting on Quantitech's participation in the ITM Power project, Keith Golding said: "ITM's hydrogen systems are able to convert renewable energy to a clean fuel that can be indefinitely stored for use in transport, residential and industrial applications, and we are delighted to be able to make a contribution to a project that offers enormous potential to reduce the burning of fossil fuels and thereby help in the fight against climate change."

The 720 is a solid-state sensor configured to operate