

Advanced capabilities and robust design, H2scan products support a variety of applications and multiple background environments both present and future.

This includes effective monitoring capabilities with, or without the presence of oxygen, as well as miniaturization for meeting cost and size constraints.

**PETROCHEMICALS**

Air Products  
Air Liquide  
UOP  
Chevron



**BATTERY MONITORING**

GCI Alaska  
L-3 Communications  
Sprint



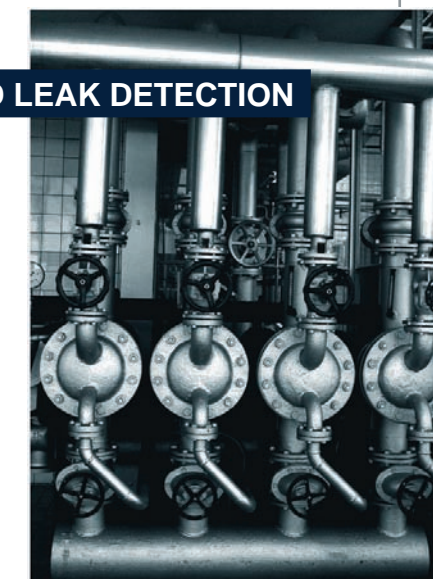
**SEMICONDUCTOR MANUFACTURING**

Novellus  
Air Liquide  
Air Products



**HANDHELD LEAK DETECTION**

Bechtel  
Boeing  
Chevron  
Ford  
Weyerhaeuser



**FUEL CELL TECHNOLOGIES**

Ballard  
BOC  
Ford  
Honda  
Hydrogenics  
Nissan  
Toyota  
UTC  
Santa Clara Valley Transit Authority



**NUCLEAR WASTE MONITORING**

Battelle  
Meggitt  
Teledyne  
Cook Nuclear  
So. Carolina Power & Energy





## HY-ALERTA MONITORING SYSTEMS

The HY-ALERTA Area Monitor is ideal for protecting any areas where Hydrogen is used/stored. It provides continuous monitoring capability 24 hours a day and can be linked to alarms for safe shutdown of facility.

### KEY ADVANTAGES:

- Real time safety monitoring
- No false alarms from combustible gases or compounds
- Long life with recommended recalibration schedule

Consult the datasheet for complete specifications



The HY-ALERTA Handheld Leak Detector provides state-of-the-art portable Hydrogen leak detection. This feature enables locating the source of the leak before it becomes a major problem.

### KEY ADVANTAGES:

- Auto zero feature - eliminates the need for periodic recalibrations
- Visual indication and reading of a Hydrogen leak
- Fast response times

Consult the datasheet for complete specifications



## HY-OPTIMA PROCESS MONITORING SYSTEMS

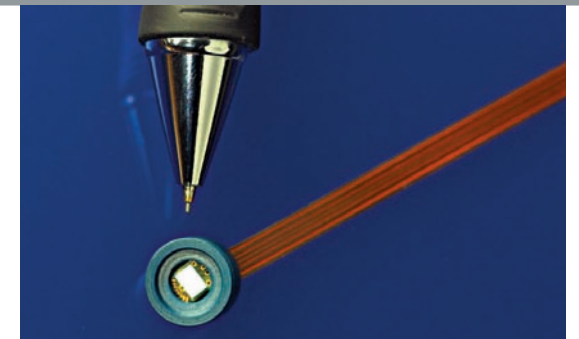
The HY-OPTIMA Process Monitor is ideal for in-line monitoring of Hydrogen concentrations in a variety of gas stream. Its fast response and excellent accuracy enables the users to monitor their operations more efficiently.

### KEY ADVANTAGES:

- Real time, in-line monitoring for process optimization
- Operates in multiple background gases (with or without O<sub>2</sub>)
- 0.5% - 100% Measurement
- Insensitive to most gases
- Operating gas temp up to 150°C

Consult the datasheet for complete specifications

H2scan systems powered by the Wide Range Sensor - WRS provide a comprehensive, cost-effective solution for all of your hydrogen sensing and process monitoring needs.



## WIDE RANGE HYDROGEN SENSOR

It is **CRITICAL** to reliably monitor the presence of hydrogen gas wherever it is produced, used, stored, or transported. H2scan systems are a solid-state solution that detect concentrations of hydrogen gas with or without oxygen present in concentrations from 15 parts per million to 100%

H2scan systems feature monitoring based on data from our patented Wide Range Hydrogen Sensor. The sensors utilize Pd/Ni thin films to measure Hydrogen in low and high ranges. The low level sensor is a MOS capacitor with a Pd/Ni plate for one side of the capacitor. The presence of Hydrogen changes the electric field of this capacitor, causing a proportional change in capacitance. The high level sensor is a Pd/Ni thin film resistor. The sensor contains a thin film of palladium-nickel deposited on a silicon substrate that changes resistance in the presence of hydrogen. As the hydrogen atoms in the lattice increases, the resistance of the Pd/Ni increases in direct proportion. H2scan systems interpret these changes and display the hydrogen concentration, while also generating an analog signal that can be sent to external monitoring systems. No other gases or environmental controls are necessary for these measurements; no oxygen is required for a reading.

The WRS sensor also features a temperature sensing element and on-board heater. Using these, H2scan systems maintain the sensor substrate at a constant temperature. This elevated, controlled temperature assures that sensor operation is unaffected by gas temperature.

## ADVANTAGES

Insensitive to:  
CO  
CO<sub>2</sub>  
Hydrocarbons  
H<sub>2</sub>S  
He

Fast Response

Operational in the Absence of Oxygen

Effectively Reads Concentration of Hydrogen for Stationary, Portable, and Process Monitoring Applications

User friendly Interface:  
0-5 volts  
4-20 mA  
RS-485 or RS-232