

# Hydrogen Monitoring in Battery Backup Applications



*Because every life has a **purpose...***



An MSA transmitter, when outfitted with an electrochemical cell, provides a continuous reading of the hydrogen concentration. Since hydrogen has a 4% by volume Lower Explosive Limit (LEL), this gives the end user an indication of a very small leak (< 1% LEL) that can be investigated and remedied. In addition to this low-level measurement, a catalytic bead sensor can be used to monitor larger leaks that could result in an explosive atmosphere (0-100% LEL or higher).

**There are two main factors to take into consideration when mounting the sensors:**

- Relative density of hydrogen is 0.069, making it lighter than air. Therefore sensors should be mounted at or near the ceiling, away from any source of fresh air, which may dilute the sample.
- Remote sensors are normally used, with panels being mounted away from hydrogen source.

The volume of space that exists from 18” below the ceiling to the ceiling is often considered a classified area according to the NFPA, requiring a sensor installed in the area to have an explosion-proof rating. This sensor is connected to a transmitter or controller which can either be explosion-proof as well, or can be installed in a non-classified, general-purpose area. A hose can be run from the sensor to the user interface for calibration and/or gas check purposes.

The transmitter or controller can be configured to send a signal to a Building Automation System, or can be used as a stand-alone system to initiate actions such as opening vents or louvers, and activating ventilation fans. Considering most of these applications are usually unmanned, the gas concentration can be communicated to an end user’s internal network for notification purposes.



Ultima® X Gas Monitor System

Designed to provide thorough, continuous monitoring of many hazardous gases, these indoor/outdoor monitors offer excellent performance with MSA quality craftsmanship.

- Multi-sensor configuration (X3) allows for the use of dual sensing technologies to provide layers of protection
- Patented sensor disconnect-under-power feature allows sensors to be replaced in hazardous areas without area declassification
- Interchangeable smart sensors eliminate the need for reconfiguration



TRIGARD® Standalone Single- or Multi-sensor Unit

The TRIGARD System employs MSA's precision craftsmanship to detect combustible gases, including hydrogen, as well as other toxic gases.

- Simple push-button calibration
- Single circuit board increases reliability
- Sturdy NEMA 4X design
- Multiple sensor mounting options



GasGard® XL Controller

Monitor up to eight remote gas sensors with the highly accurate wall-mounted GasGard XL Controller.

- Large, multi-language LCD display provides real-time readings and offers full-system diagnosis
- Housed in durable, fire-retardant ABS plastic
- Sensor features a buzzer that sounds up to 85 dB
- Convenient upload system enables event-log transfer via ethernet or USB

# MSA—The Safety Company

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*Our business is safety. We've been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they're also highly-sophisticated devices and protective gear — the result of countless R&D hours, relentless testing, and an unwavering commitment to quality that saves lives and protects thousands of men and women each and every day. Many of our most popular products integrate multiple combinations of electronics, mechanical systems, and advanced materials to ensure that users around the world remain protected in even the most hazardous of situations.*

*Our dedication to safety has been the key to our impressive year-over-year growth. In 8 of the past 10 years we've achieved record growth numbers, with annual revenues of more than \$1 billion.*

## Our Mission

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MSA's mission is to see to it that men and women may work in safety and that they, their families, and their communities may live in health throughout the world.

**MSA: Because every life has a purpose.**

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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