

HY-GUARD™

ALL-IN-ONE AREA MONITOR

H2scan®
Advanced Hydrogen Sensing



Advanced Hydrogen Area Monitoring for Safety Systems

The HY-GUARD™ hydrogen monitor tackles critical safety issues for area monitoring applications including standby battery systems.

- No false alarms
- Continuous self-calibration that verifies sensor performance throughout its operational life
- Long 10+ year service life battery types (e.g. last the life of most battery types)
- Flexible communication options including dry potential-free contacts, 4-20 mA analog output, and Modbus RTU (RS-485)
- Multiple mounting choices include junction box, DIN-rail, wall-mount, and magnetic mount
- Helps facilities stay compliant with the International Fire Codes (IFC) and NFPA 1635

HY-GUARD's design, bridges the gap between basic detection devices and overengineered industrial solutions, was designed specifically for area-monitoring and battery applications in mind.

Transform Area-Monitoring Safety

- True Safety Assurance: HY-GUARD self-verification eliminates false security through continuous self-verification
- Zero Maintenance: Long sensor life and no calibration required over the life of the instrument
- Flexible Configuration: Modular design allows selection of needed required capabilities, ranging from relay outputs to advanced communication protocols
- Superior Reliability: Proven sensor technology without the drift, false alarms, and premature failures common in catalytic and metal oxide sensors
- Standards-drive Development: Designed to meet stringent fire code, including NFPA 2, NFPA 855, IFC, OSHA 1910, IEC 62485-2, IEC 62933-5-2 IEE 484, EN and EU directives

Upgrade Your Hydrogen Safety Program with a Complete Solution

Right-Sized for Battery Applications: Purpose-built for standby power systems. Modular options support specific requirements without paying for unnecessary features

Field-Proven Technology: Delivers H2scan's industry-leading hydrogen sensing technology, refined over 20 years in power utility and industrial process applications

Flexible Mounting Options: Easy installation with options for standard mounting

Simple Installation Setup: Streamlined setup process for fast, efficient deployment

Continuous Self-Calibration: Every 12 hours throughout the sensor life. No calibration gases, bump testing or site visits. Provides alerts if the sensor performance degrades

All-in-One Design: Integrated, compact solution eliminates external modules, excessive wiring and complex conduit installations



HY-GUARD features an easy pull-apart design that simplifies installation, maintenance, and bump testing (in the unlikely event it is required). Its construction allows quick access to connectivity components without specialized tools, delivering reliable performance with minimal effort. This simplistic design makes ongoing operation and verification straightforward for technicians and facility teams alike.

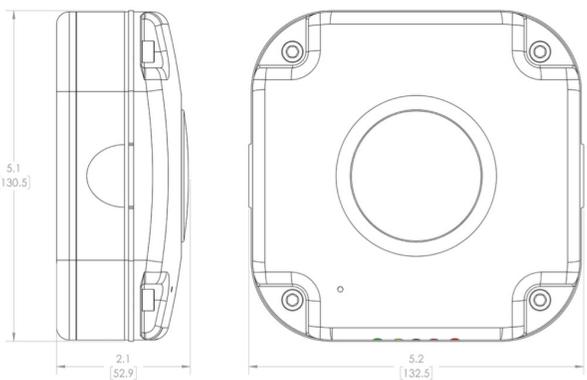
HY-GUARD Operating Modes

LED	Mode
 Green	Power Indicator
 Red	Cautionary Alarm 1% H ₂
 Red	Critical Alarm 2% H ₂
 Yellow	Self-Diagnostics Indicator
 Push-Button	Alarm Acknowledge & H ₂ Simulation

HY-GUARD Sensor Module and Back Plate



HY-GUARD Dimensions



Product Specifications

Operating Conditions

H₂ Range	0.4 - 5%
Detection Time¹	<5 seconds
Accuracy²	±0.3% H ₂ (Absolute Error)
Survivability	5%
Response Time³	50 to 70 seconds
Ambient Temperature	15°C to 40°C (59°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	0 - 95% RH non-condensing
Lower Detection Limit (LDL)	0.4%
Sensor Detection Range	0.4% - 5.0%
Connector Type	AC: Relay 1%, Relay 2%, Fault DC: RS-485, 4-20 mA

Physical

Dimensions	132.5 x 130.5 x 52.9 mm (5.2 x 5.1 x 2.1 in)
Weight	(0.5 kg) 1.1 lbs
Vibration	ISTA 6-FEDEX-A Test
Shock	ISTA 6-FEDEX-A Test
Buzzer	83 db at 3 ft

Power

Input Voltage AC	85 to 264 VAC
Input Voltage DC	15 to 60 VDC: 90 to 250 VDC ⁴
Power Consumption	10 W max
Analog Output	0 minimum, 4-20 nominal, 24 mA max
RS-485	Modbus (two-wire)

Certifications

Compliance & Certification	IEC 61010 ⁵ - In Progress FCC Part 15 REACH RoHS
Applicable Standards	OSHA 29 CFR 1926 IFC 608/ Chapter 12 NFPA 1 & 855 NFPA 68 & 69 IEC 62933 IEEE Standards – Stationary battery and energy storage

- Detection time is based on exposure to 5% hydrogen gas using a gas calibration cap attached to the front of the HY-GUARD sensor
- Concentrations >2% have an accuracy of ± 1%. Prolonged exposure to hydrogen concentrations >5% may damage the sensor
- The response time is the time until the measured H₂ exceeds 1% when transitioning from air to 3% H₂/Air
- Alternative wiring connection required, refer to user manual
- The HY-GUARD was designed for and passed pre-performance testing per the requirements of UL 61010-1 and CSA C22.2 No. 61010-1, and is currently undergoing formal certification by an agency

Note: HY-GUARD supports both AC and DC power inputs. AC is used as the primary source by default. In the event of AC loss, HY-GUARD will automatically switch to DC when AC and DC are powered by separate power sources