

Battery Room Hydrogen Monitors for NFPA 111 Compliance

Application Notice: Major Financial Institution Installs Battery Room H₂ Monitoring Systems to Comply with Safety Regulations

Application: Battery Room Hydrogen Monitoring

Industry: Financial Institution / Office Building

Results Achieved:

- Installed Hydrogen Monitoring System with Supervisory Notification
- Integrated Hydrogen Monitoring System to Building Ventilation to Meet Regulatory Building and Safety Code
- Reduced Insurance Costs

Remote Sensor Mounting Kit



Battery Room Hydrogen Monitoring Systems to be Installed in Branch and Regional Locations

Application

A Major financial institution upgraded their data center battery rooms for reliability, safety, and compliance with local building codes and NFPA 111.

Challenge

Battery rooms at the financial institution had grown piecemeal as the data centers expanded. Safety systems were either nonexistent or inadequate to serve the larger stored energy capacities now present.

Newer stored energy system requirements force UPS users to upgrade existing battery rooms for compliance with local fire and building codes and NFPA 111, "Standard on Stored Electrical Energy Emergency and Standby Power Systems."

During charging, lead acid batteries discharge Hydrogen that ignites easily and explodes when present in high concentrations. A Hydrogen flame is invisible and fires are extremely hazardous to personnel.

The bank required reliable Hydrogen detection to satisfy their insurance company and comply with NFPA 111, referenced in the local fire and building codes.

Solution

A Sensidyne SensAlarm Plus gas monitoring system was installed with Hydrogen specific gas sensors. Ceiling mounted remote sensor heads monitored the lighter than air Hydrogen while the SensAlarm Plus enclosure was installed outside the entry door. The gas detection system integrated with battery charging equipment and ventilation fans. Installation was simplified due to easily remote mounted sensor heads that only required a 4-conductor cable connection.

Refer to NFPA 111 "Standard on Stored Electrical Energy Emergency and Standby Power Systems" and NFPA 70 "National Electrical Code" for additional Battery Room safety information.



SENSALARM PLUS

The *Advanced All-In-One Gas Detection System*

All-In-One Gas Monitor

Advanced Single Point Gas Detection System
1 or 2 Double-flash Strobes, Horn and Reset
Optional Battery Back-up

Intelligent Plus Sensors

Percent Remaining Sensor Life
Auto-recognition and Configuration
Uploads Gas Application Data / Alarms
Time-stamped Alarm and Calibration Data

Flexible Installation or Maintenance

Non-intrusive Configuration / Maintenance Interface
Remote Sensor / Gassing, Duct Mount or Sample Draw
Mount Sensor up to 100 Feet Away with 4 Conductor Cable

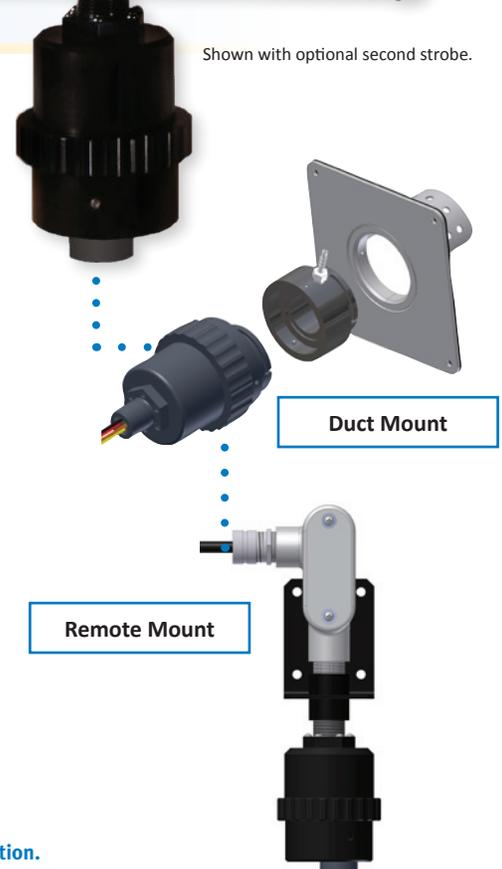


Shown with optional second strobe.

SensAlarm Plus is a complete gas detection system in one enclosure. The system is fully equipped with strobe, horn, high-visibility four-digit LED Display and LCD Display / Interface. At the core of SensAlarm Plus is an advanced Intelligent Sensor platform with non-volatile memory for all key application variables and sensor data. A non-intrusive user interface enables operational customization and access to sensor life parameters, TWA alarms, calibration data and other information with date and time recording.

The SensAlarm Plus sensor head is universal in that it accepts all Sensidyne Plus sensors. Monitoring in high, low or adjacent locations is simplified by remote mounting the sensor head using 4 conductor cable. The automatic uploading of variables, alarm values and sensor information when a sensor is plugged in greatly simplifies installation and maintenance. Transportable calibration allows sensor calibration at the point of installation or in a workshop, then hot-swapping the sensor in the field.

SensAlarm Plus is the ideal gas monitoring solution for labs, gas cylinder storage, industrial work areas, control room protection or any other applications where users benefit from a packaged gas detection system that works with all SensAlert Plus sensors.



SENSALARM PLUS

The Advanced All-In-One Gas Detection System

Ordering Guide

INSTRUMENTS & ACCESSORIES

SensAlarm Plus Monitor	820-0301-01
SensAlarm Plus Monitor with 2nd Strobe	820-0301-03
SensAlarm Plus Monitor with Battery Back-up.....	820-0301-02
SensAlarm Plus Monitor with Battery Back-up and 2nd Strobe	820-0301-04
Remote Sensor Kit	821-0301-01

SENSORS

Acetylene IR – 50% LEL.....	823-0249-51
Ammonia – 100 ppm	823-0201-21
Ammonia – 50 ppm.....	823-0201-22
Ammonia – 300 ppm	823-0201-41
Ammonia – 500 ppm	823-0201-42
Carbon Dioxide IR – 5.00% Vol.	823-0205-52
Carbon Monoxide – 100 ppm low interference to H ₂	823-0219-41
Carbon Monoxide – 500 ppm low interference to H ₂	823-0219-42
Carbon Monoxide – 1000 ppm low interference to H ₂	823-0219-43
Carbon Monoxide – 100 ppm.....	823-0219-23
Carbon Monoxide – 500 ppm.....	823-0219-22
Chlorine – 10.0 ppm	823-0202-21
Chlorine – 5.00 ppm	823-0202-22
Chlorine – 20.0 ppm	823-0202-23
Chlorine (H2S Resistant) – 10.0 ppm	823-0202-41
Chlorine (H2S Resistant) – 5.00 ppm	823-0202-42
Chlorine (H2S Resistant) – 100 ppm	823-0202-43
Chlorine Dioxide – 1.00 ppm	823-0239-41
Combustibles IR – 100% LEL.....	823-0211-51
Combustibles Catalytic Bead, General – 100% LEL.....	823-0211-31
Comb. Catalytic Bead H2, ETO, Acetylene – 100% LEL	823-0211-32
Ethylene Oxide (ETO) – 10.0 ppm.....	823-0245-21
Fluorine – 10.0 ppm	823-0215-21
Fluorine – 25.0 ppm	823-0215-22
Hydrogen Chloride – 10.0 ppm.....	823-0208-21
Hydrogen Chloride – 20.0 ppm.....	823-0208-22
Hydrogen Cyanide – 20.0 ppm	823-0203-21
Hydrogen Fluoride – 10.0 ppm.....	823-0207-21
Hydrogen Fluoride – 20.0 ppm.....	823-0207-22
Hydrogen Specific Electrochemical LEL – 100% LEL.....	823-0210-41
Hydrogen Specific PPM – 1000 ppm	823-0210-21
Hydrogen Sulfide – 100 ppm	823-0206-21
Hydrogen Sulfide – 50 ppm	823-0206-22
Nitric Oxide – 100 ppm.....	823-0242-21
Nitrogen Dioxide – 10.0 ppm.....	823-0221-21
Oxygen – 25.0%Vol.....	823-0240-21
Ozone (also PLUS 1.00 ppm) – 2.00 ppm.....	823-0243-22
Phosgene – 1.00 ppm.....	823-0247-21
Sulfur Dioxide, H2S Filtered – 20.0 ppm.....	823-0218-21
Sulfur Dioxide, H2S Filtered – 10.0 ppm.....	823-0218-22

Contact factory for additional sensor information or specifications.



Specifications

SENSORS

Gas Sensors All Sensidyne Plus sensors
ToD: Test-On-Demand available for specific toxic sensors.

ELECTRICAL

Design Microprocessor based with nonvolatile memory.
Automatically resumes operation after power failure.
Power 100-240 VAC, 50/60 Hz or 20-30 VDC.
Battery Optional battery back-up available
Outputs 4-20 mA into 600 ohms; Optional
RS-485, Modbus RTU Protocol,
Strobe Red lens flashing strobe (NEMA 4X) standard with optional
dual strobes with red and amber strobe.
Horn..... 95 dB piezo horn
Alarm Relays ... SPDT, 6 Amps @ 120VAC or 24VDC, User accessible SPDT Fault, Low &
High Alarm Relays. Additional relays for Strobe & Sounder. Note: Alarm
values stored in non-volatile memory.

ENCLOSURE

Material Fiberglass.
Description UL listed, NEMA 4X Rated
Type Wall mount with tabs & threaded inserts.
Overall Size 9.75 (W) by 20 (H) by 6.4 (D) Inches,
24.8 (W) by 50.8 (H) by 16.3 (D) cm.
Weight 9.75 - 13.75 lbs. (4.4 - 6.3 Kg) including sensor
Conduit 3/4 inch EMT connector supplied (side).
Temperature... -4° to 122°F (-20° to 50°C).
Humidity..... 0-90 %RH, non-condensing.
Location Indoor or Outdoor
Sensor Head ... Sensor head enclosure and retaining ring are black anodized aluminum;
splash guard, and most other accessories are made of PVC.

DISPLAYS & CONTROLS

LCD Display Alphanumeric (Value, Gas, & Units).
LED Display 4 Digit x 1.5 Inch Red LED (Value).
Indicators..... Power source LEDs (AC, DC and Battery), Alarm and corresponding to
magnetic keypad LEDs: (1 & OK; 2 & << [Go Back];
3 & ▲; 4 & ▼)
Security..... Password Protected Configuration Menu
Auto Config..... System automatically senses the presence of optional modules and
features
Reset/silence .. External push button switch for acknowledge (Alarm sequence 3A)
Annunciators .. Audible (+95db) & Visual single strobe with optional second strobe
Note: Refer to certification documents and datasheets for specific approval and
configuration information.