

# **SENSIDYNE®**

Industrial Health & Safety Instrumentation



*Gas Detection  
for Ice Skating &  
Hockey Arenas*

## **SENSALARM PLUS**

The Advanced All-In-One Gas Detection System

+ Detection at every point.

# 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

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.



## Ice Skating and Hockey Arena Safety

Spending the afternoon skating is thought to be a fun and enjoyable outing for families, couples, and kids. Even the hockey players getting checked into the boards and figure skaters practicing their routines find comfort within ice arenas. One thought not often on the minds of spectators, parents, athletes, and leisure skaters are the lingering risks they might confront.

### What Causes Poor Indoor Air Quality Problems at Ice Arenas?

Poor indoor air quality found in many indoor ice rinks can cause potentially deadly health hazards from exposure to Carbon Monoxide, Nitrogen Dioxide, and airborne Particulate Matter. Ice resurfacing equipment operated indoors releases these pollutants from the burning of fuel. Additional sources of possible pollutants are dehumidification equipment that can lead Carbon Monoxide into the ventilation system. It is critical that ventilation inside ice arenas is properly operated and maintained ensuring that enough fresh air enters the facility and pollutants are removed.

**Carbon Monoxide (CO)** is an odorless and colorless gas, in low level exposures it causes headaches, dizziness, and nausea. High level exposures can cause death.

**Nitrogen Dioxide (NO<sub>2</sub>)** is a toxic gas that irritates the eyes, nose, and throat and causes shortness of breath in humans.

**Particulate Matter (PM)** is fine airborne particles that can contain acids and metals, when inhaled these particles can result in future heart and lung problems.



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## Best Practices for Arena Owners and Managers

Learn and become aware of the potential indoor air quality risks associated with indoor arenas. Pay attention to the warning signs of combustion pollutants including CO, NO<sub>2</sub>, and PM poisoning. If you start to see signs of adverse health effects that you suspect are the result of pollutant exposures, limit or stop activity immediately and consult a medical professional. Exposed persons should get fresh air immediately and leave the building.

Due to the unique use and purpose of ice arenas, these facilities should take specific steps to protect indoor air quality:

- Educate workers on their role in protecting occupants including children and indoor air quality.
- Establish procedures for responding to indoor air complaints and emergencies.
- Provide continuous ventilation whenever the rink is occupied. Exhaust of contaminants and supply of fresh outdoor air are necessary to maintain good air quality in ice arenas.
- Provide adequate mechanical ventilation to exhaust contaminated air from combustion sources to the outdoors and away from occupants. [American Society of Heating, Refrigeration and Air-conditioning Engineers' (ASHRAE) Ventilation for Acceptable Indoor Air Quality, Standard 62.1-2007]
- Ensure that the fresh air intake is not located near the exhaust from loading areas and outside vehicles, and that the intake is not blocked.
- Consider replacing older equipment that does not meet current EPA emissions standards with newer compliant equipment.

- Warm up resurfacing equipment in a well-ventilated room or a room equipped with a local exhaust.
- Use ice edgers only when the ventilation system can adequately exhaust the emissions. Keep arena gates open during resurfacing to allow for better air circulation.
- Establish a system of monitoring air quality providing continuous monitoring of gas concentration levels.
- Have all combustion equipment such as resurfacers, edgers, forklifts, water pumps, and auxiliary generators as well as ventilation and safety monitoring equipment regularly maintained by a qualified technician.

### Gas Monitoring Solutions for Ice Arenas

Sensidyne provides a robust solution for monitoring gas concentration levels in ice arenas. SensAlarm Plus is a continuous monitoring system providing detection, alarm, and relay output in a single easy to use system. SensAlarm Plus maximizes installation flexibility allowing the sensor head to be placed near potential hazards while the transmitter can be installed in an easy to access area. Exposure history and sensor data can be reviewed through the on-screen menu. SensAlarm Plus output relays can connect to ventilation systems to create demand-controlled fresh air intake and optimize ventilation speeds resulting in cost-savings versus continuous ventilation systems.

Sensidyne provides expert support in helping customers select the equipment most appropriate to their application needs. We look forward to working with you in the design of your ice arena safety system.

# SENSALARM PLUS

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

### 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

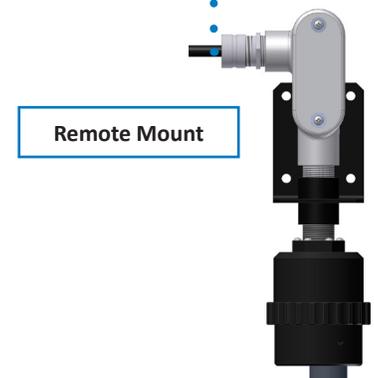
Reset/silence .. External push button switch for acknowledge (Alarm sequence 3A)

Annunciators .. Audible (+95db) & Visual single strobe with optional second strobe

**Note:** Refer to certification documents and datasheets for specific approval and  
configuration information.



Shown with optional second strobe.



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