

SENSIDYNE®

Industrial Health & Safety Instrumentation



*Certified Ammonia
Gas Detectors
for Safety &
Compliance*

SENSALERT PLUS

+ Detection at every point.

SENSALERT PLUS

Universal Point Gas Monitor Accepting Combustible
(Infrared or Catalytic), Toxic, and Oxygen Gas Sensors



Highest Reliability and Function

- Predictive Sensor End-of-Life Indication
- Missing or Non-functional Sensor Indication
- Sensor Test-On-Demand, with On-board Gas Generator

Explosion-Proof Transmitter with Intrinsically Safe Sensor Head

- Shop Calibrate and Hot-swap Gas Sensors in Classified Areas
- Mount Sensor up to 100 ft./30 m. Away Without Rigid Conduit

Intelligent SensAlert Plus Sensors

- Auto-recognition and Set-up from Sensor Memory Provides Operating Parameters and Diagnostics for All Plus Transmitters

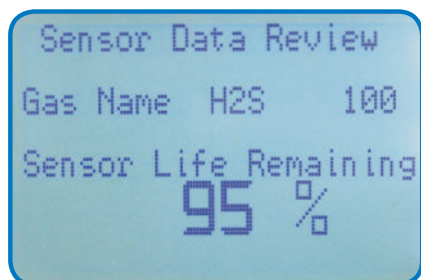
International Performance Approvals

- Performance Tested and Certified to FM and ATEX Standards
- Unrestricted Hazardous Classified Area Installation and Operation

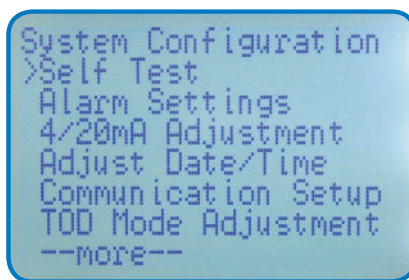
Flexible Installation or Retrofit

- 2-Wire and 3-Wire Transmitters with Enclosure Options
- Non-intrusive Configuration and Maintenance Interface
- Remote Sensor / Gassing, Duct Mount and Sample Draw
- Configurable Alarms: Fault Conditions and Test-on-Demand

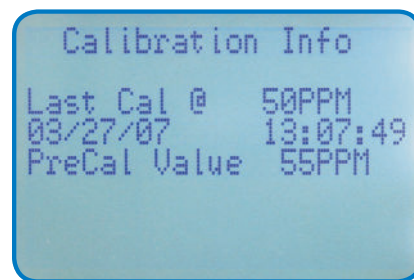
Increased Reliability



Simple to Install & Maintain



Reduced Cost of Ownership



+ Detection at every point.

Ammonia Gas Detection

Ammonia is a common chemical used in household products, fertilizer, and commercial and industrial refrigeration. Ammonia is widely distributed, so much so that there are dedicated Ammonia pipelines and port terminals. Ammonia production requires Natural Gas or other hydrocarbons that are converted to Hydrogen by steam reforming then catalytically combined with Nitrogen at high pressure.

While commonly used, Ammonia can be dangerous. Ammonia has a pungent odor, is toxic, highly reactive and corrosive. It is colorless in gas form and can also exist as compressed liquid. Ammonia reacts violently with water and can cause serious damage to skin, eyes, and the respiratory system. In gas form, Ammonia is lighter than air and has a density of 0.6 relative to air (1.0). While Ammonia is a toxic gas, it is also flammable above 15% by volume. OSHA and EPA require formal

Process Safety or Risk Management programs when the quantity of Ammonia on site is above 10,000 lbs.

Commercially, Ammonia is often referred to as Anhydrous Ammonia since it's typically stored in pure form as a pressurized liquid at -28° F (-33° C) or cooler. Ammonia can also be stored as Ammonium Hydroxide (in water) at concentrations up to 29% by volume for easier handling.

Ammonia	Density (Air=1)	OSHA PEL TWA	NIOSH REL, TWA	ACGIH STEL	NIOSH IDLH	EPA TLV Storage
NH3	0.6	50 ppm	25 ppm	25 ppm	300 ppm	10,000 lbs.

Fertilizer Production and Direct Crop Application

The majority of the world's Ammonia is used in direct application for fertilizer production - fertilizer generated from ammonia is responsible for sustaining one-third of the Earth's population. Examples of direct application include Urea Ammonium Nitrate, Ammonium Nitrate, Diammonium Phosphate, and Monoammonium Phosphate. These products are distributed in granular form for crop application.

Ammonium Hydroxide, NH₄OH with water quickly forms when applying Anhydrous Ammonia directly to soil. A large portion of the Ammonia is converted to Ammonium (NH₄⁺), and will be bound to clay and organic matter particles. This application method is widespread and is lower cost versus applying a granular fertilizer to the soil.

Selective Catalytic Reduction (SCR):

SCR is a proven method of reducing NO_x emissions for compliance with EPA standards in modern Power Plants. Ammonia is sprayed into the flue gas ahead of a catalyst bed to react out Oxides of Nitrogen (NO_x). This technique is used by more than 400 power generation facilities in the United States alone.

Ammonia is delivered, stored and pumped to the vaporizers where it becomes a pressurized gas for spraying into the flue gas. Ammonium Hydroxide, ammonia mixed with water, can also be used but is less efficient.

Refrigeration

Ammonia is common in large refrigeration units due to its low cost and high energy efficiency as well as having negligible environmental impact. Food, beverage, and chemical companies can use many hundreds of tons of Ammonia for refrigeration in one location. Due to the large amounts of Ammonia in storage, these systems require leak detection for personnel protection and to notify adjacent facilities and neighborhoods of a gas release.



Industrial Safety when Using Ammonia

Best Practices

Ammonia releases are common due to the nature of the equipment and operating pressures. Releases can be minimized in frequency and severity through proactive maintenance practices, appropriate area monitoring, safety program planning, and communication with local emergency responders.

FM Certified Ammonia Sensors

Sensidyne has achieved the FM performance approval for their SensAlert Plus series Ammonia sensors. The Factory Mutual (FM) approval is a certification that the sensor can detect low PPM Ammonia reliably and repeatedly within the specified response times and accuracy. Sensidyne offers four different range

Ammonia sensors including a long-life version commonly used for process leak detection. FM performance certification can have a favorable effect on facility hazard analysis for insurance purposes. At publishing, Sensidyne is the only manufacturer to achieve FM performance approval on their low PPM Ammonia sensors for gas detection systems.

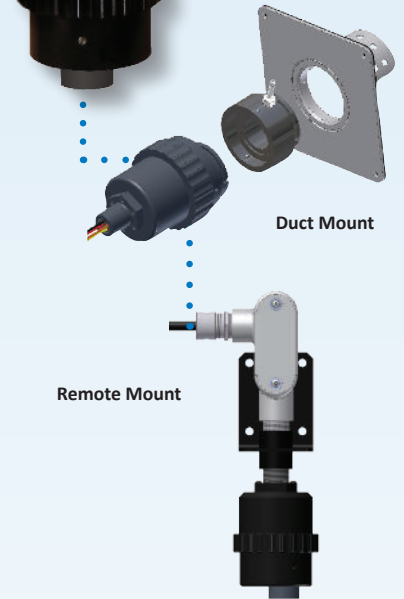
Plus Series Sensor Part Number	Sensor Range	TLV-TWA	NIOSH IDLH	Response Time, T-50	Operating Temperature, Humidity
823-0201-22 FM approved	50 ppm	25 PPM	300 PPM	< 11 sec	-4° to 122° F, 15-90% RH
823-0201-21 FM approved	100 ppm	25 PPM	300 PPM	< 11 sec	-4° to 122° F, 15-90% RH
823-0201-41 FM approved	300 ppm	25 PPM	300 PPM	< 10 sec	-4° to 122° F, 15-90% RH
823-0201-42 FM approved	500 ppm	25 PPM	300 PPM	< 10 sec	-4° to 122° F, 15-90% RH

SENSALERT PLUS

Universal Point Gas Detector Accepting Combustible (Infrared or Catalytic), Toxic, and Oxygen Gas Sensors



Shown with optional second strobe.



SENSALARM PLUS

SensAlarm Plus is a complete single point gas detection system comprised of a gas detection transmitter, sensor (sold separately), power supply, outputs, and annunciation. This system is extremely cost-effective and easy to install. SensAlarm Plus is compatible with all SensAlert Plus sensors and accessories.

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1000 112th Circle North, Suite 100 • St. Petersburg, Florida 33716 • U.S.A.
 Tel: 800-451-9444 / +1 727-530-3602 • Fax: +1 727-539-0550
 info@Sensidyne.com • www.SensidyneGasDetection.com



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