

# GASGUARD NH<sub>3</sub>-2%-EXP

## EXPLOSION-PROOF HIGH-RANGE AMMONIA SENSOR



### Key Features

- Explosion-proof enclosure for classified areas
- 0/2% (20,000 ppm) range
- No zero signal drift
- Electronics potted to eliminate internal corrosion
- Ammonia selective catalytic bead sensor technology
- Industry standard 24VDC, linear 4/20 mA output
- Operating temperature from -40°F to +120°F
- Accurately monitor explosive NH<sub>3</sub> levels for emergency response situations
- Real-time continuous monitoring for early leak detection
- Sensor element designed for long life in harsh industrial environments

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## High-range ammonia detection. Explosion-proof design.

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The GasGuard NH<sub>3</sub>-2%-EXP is designed to detect and monitor potentially explosive levels of ammonia vapors in the event of a catastrophic failure. Most codes specify an electrical shunt-trip at a level not higher than 25% LEL to remove potential ignition sources in the event of a serious ammonia leak. The GasGuard NH<sub>3</sub>-2%-EXP allows for an earlier trip level of 12.5% LEL.

The GasGuard NH<sub>3</sub>-2%-EXP utilizes an ammonia selective catalytic bead sensor technology with a matched pair of detector elements. When ammonia vapors enter the sensor, the passive bead remains un-changed while the active detector bead catalyzes the oxidation of gas, generating heat and changing its resistance. The resulting change in resistance is accurately measured across the bridge circuit.

The GasGuard NH<sub>3</sub>-2%-EXP provides an industry standard linear 4/20 mA output signal proportional to 0-2% (20,000 ppm) of ammonia. Long sensor life with minimal span adjustment can be expected in most mechanical room applications. The sensor is designed for simple calibration and the sensor head is easily field replaceable.

### Applications

- |                    |                        |                  |                   |
|--------------------|------------------------|------------------|-------------------|
| • Compressor Rooms | • Tank Rooms           | • Cold Storage   | • Refineries      |
| • Emergency Stop   | • Sea Vessels          | • Pulp and Paper | • Chemical Plants |
| • Heat Treatment   | • Refrigeration System | • Breweries      |                   |

### Benefits

- Low cost explosion protection
- Long sensor life (5-7 years typical)
- Simple operation & calibration

**CALIBRATION  
TECHNOLOGIES  
Inc.**

Since low-range sensors can't detect high enough and high-range sensors can't detect accurately at low levels, the use of the **GasGuard NH<sub>3</sub>-2%-EXP** sensor in conjunction with low-range GasGuard NH<sub>3</sub> sensors ensures a second-stage line of defense in the event of a serious ammonia leak. Intended for emergency stop of all compressors, pumps and normally closed valves, the **GasGuard NH<sub>3</sub>-2%-EXP** provides protection against potentially explosive situations.

Typical sensor element life is 5-7 years, with minimal to no cross-sensitivity to most other gases. Field replaceable sensor elements keeps long term maintenance simple and low cost. Every circuit board is potted to completely eliminate corrosion to the electronic components and copper tracing on the circuit board. An explosion-proof aluminum enclosure houses the transmitter.

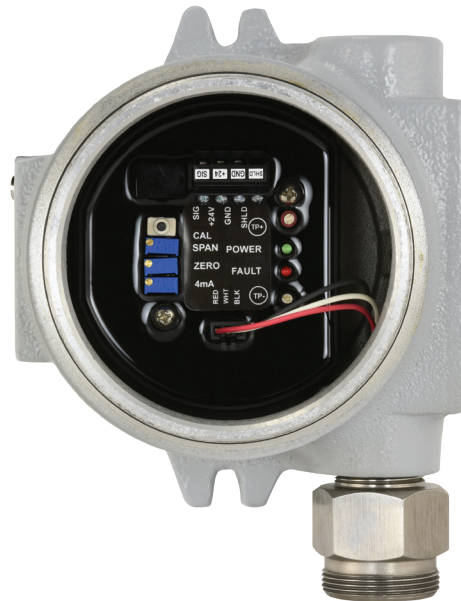
## Ordering Information

The **GasGuard NH<sub>3</sub>-2%-EXP** is delivered calibrated and ready to install. The assembly includes sensor and potted transmitter mounted inside an explosion-proof enclosure. Use the model numbers below to order.

Order #: **GG-NH<sub>3</sub>-2%-EXP**  
**GG-NH<sub>3</sub>-2%-RS-EXP** (replacement sensor)



replacement sensor



## SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

### Input Power:

+24 VDC, 80 mA

### Detection Principle:

Catalytic Bead

### Detection Method:

Diffusion

### Gases:

Ammonia (NH<sub>3</sub>)

### Ranges:

0-2% (20,000 ppm) (1,000 ppm deadband)

### Output Signal:

Linear 4/20 mA (max input impedance: 700 Ohms)

### Linearity:

+/- 0.5% of full-scale

### Repeatability:

+/- 1% of full-scale

### Response Time:

T50 = less than 30 seconds

T90 = less than 60 seconds

### Accuracy:

+/- 5% of value

### Zero Drift:

Less than 0.1% of full-scale per month, non-cumulative

### Span Drift:

Less than 2% per month

### Temperature Range:

-10°F to +140°F (-23°C to +60°C)

### Humidity Range:

5% to 95% non-condensing

### Wiring Connections:

3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

### Terminal Block Plugs (Field Wiring):

26-12 AWG, torque 4 lbs-in

### Dimensions:

6.75" high x 5.25" wide x 4.5" deep

### Weight:

3.75 lbs

### Enclosure:

Copper-free aluminum body, epoxy powder coat finish, neoprene gasket, for hazardous areas.

#### NEC/CEC:

Class I, Division 2, Groups B, C, D  
Class II, Division 1, Groups E, F, G  
Class II, Division 2, Groups F, G  
Class III

NEMA/EEMAC: 3, 4, 4X, 7BCD, 9EFG

UL Standard: 1203

CSA Standard: C22.2 No. 30

FM Classification No.: 3615

ATEX Certificate KEMA 02 ATEX 2265U

IEC Standards EN:60079-0, EN:60079-1, EN:60529

### Sensor Head:

Stainless steel flameproof enclosure constructed with an integral stainless steel sinter filter for the safe entry of the atmosphere being detected.  
ATEX Certificate CESI 01 ATEX 066 U

### Warranty:

2 years (including replacement sensor)