CALIBRATION TECHNOLOGIES INC.

Specialists in Gas Detection

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GasGuard NH_3-2%-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 linear 4/20 mA output
- Corrosion, weather and chemical resistant fiberglass composite sensor enclosure
- Operating temperature from -40°F to +120°F
- Accurately monitor explosive NH3 levels for emergency response situations
- Real-time continuous monitoring for early leak detection.
- Sensing element designed for long life in harsh industrial environments

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High-range ammonia detection.
Explosion-proof design.

The GasGuard NH3-2%-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 NH3-2%-EXP allows for an earlier trip level of 12.5%LEL.

The GasGuard NH3-2%-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 NH3-2%-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 is field replaceable.

Applications

- Compressor Rooms
- Electrical shutdown
- Heat Treatment
- Tank Rooms
- Sea Vessels
- Refrigeration Systems
- Cold Storage
- Pulp and Paper
- Chemical Plants
- Breweries
- Refineries

Benefits

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

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Since low-ppm sensors can't detect high enough and high-ppm sensors can't detect accurately at low levels, the use of the **GasGuard NH3-2%-EXP** sensor in conjunction with low-ppm GasGuard NH3-EXP sensors ensures a second-stage line of defense in the event of a serious ammonia leak. Intended for electrical shutdown, it provides protection against potentially explosive situations.

Typical sensor life is 5-7 years, with minimal to no cross-sensitivity to most other gases. Field replaceable sensor element 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 and houses the transmitter.

Ordering Information

The **GasGuard NH3-2%-EXP** is delivered factory calibrated and ready to install. The assembly includes sensor, transmitter and explosion-proof enclosure. Use the model numbers below to order.

GG-NH3-2%-EXP
GG-NH3-2%-EXP-RS (*replacement sensor*)

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Catalytic Bead

DETECTION METHOD:
Diffusion

GASES:
Ammonia (NH3)

RANGES:
0-2% (20,000 ppm)

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

POWER SUPPLY:
+24 VDC, 120 mA

SENSITIVITY:
200 ppm with 1,000 ppm zero deadband

TEMPERATURE RANGE:
-40°F to +150°F (-40°C to +66°C)

HUMIDITY RANGE:
5% to 100% condensing

RESPONSE TIME:
T_{50} = less than 20 seconds
T_{90} = less than 45 seconds

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy

ZERO DRIFT:
Less than 0.01% of full-scale per month

SPAN DRIFT:
Generally less than 1% full-scale per month

REPEATABILITY:
+/- 1% of full-scale

LINEARITY:
+/- 1% of full-scale

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (Belden 8772 or equivalent) up to 1500 ft.

ENCLOSURE:
Body and cover: Aluminum.
Certification and compliances:
- NEC/CEC:
  Class I, Division 1 & 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
- IEC Standards EN:60079-0, EN:60079-1, EN:60529

Sensor head: Stainless steel
- CESI01ATEX066U (component certificate)
- Standard ATEX marking: II 2G Ex d IIC Gb

DIMENSIONS:
7" high x 5.25" wide x 4.75" deep

WEIGHT:
5 lbs