

CI21 Transmitter

Low maintenance ammonia detection





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The charge carrier injection (Cl21) sensor is a progressive development to improve upon current ammonia refrigeration detection methods. With Cl21 technology sensor life is no longer limited to ammonia exposure levels. This reduces replacement costs associated with electrochemical sensors.

Charge carrier injection technology also eliminates false alarms frequently associated with metal oxide sensing (MOS). These, along with other features, provide reliable, cost effective, long-term safety.

The Cl21 transmitter is an advanced development to which all other ammonia transmitters will be compared.

The new ammonia standard Temperature influence

Utilizing a controlled sensor voltage, the Cl21 maintains a constant internal temperature, allowing accurate readings without additional heating components.

Graph 1 compares the temperature behaviors of metal oxide (MOS) and electrochemical sensors with the Cl21. The alarm threshold is set at 200 ppm, and each of the sensors is calibrated to 200 ppm NH3 at 77 °F. At lower temperatures, the response of the Cl21 is extremely accurate, whereas the MOS and electrochemical sensors drift considerably.

Technical Data: CI21

Gas: Ammonia (NH3) Detection ranges: 20 - 200 ppm

30 - 1,000 ppm

30 - 10,000 ppm

Gas supply: DiffusionShielded cable: 3 wire x 18 AWExpected sensor life: Greater than 3 yearsup to 500 yardTemperature range: -40 to +131 °F / -40 to +55 °CProtection class: IP54 - CasingHumidity: 0 to 99% r.h. non-condensingHumidity: 0 to 99% r.h. non-condensing



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© GfG Instrumentation, Inc. 2022 All specifications on this brochure are subject to technical changes due to further development. If calibration is performed at lower temperatures, the identification lines shift to a higher ppm indication. As temperatures increase, the CI21 operates with the same reliability, whereas the MOS and electrochemical sensors indicate alarm conditions due to the higher slope of their indication lines.

Humidity influence

Fluctuating humidity levels are no longer an issue with the Cl21. MOS sensors require a minimum humidity level in order to respond to leaks of ammonia, while the Cl21 does not!

Low humidity is a typical condition of refrigerated areas due to lower temperatures. With the Cl21, a direct calibration with ammonia test gas can be accomplished with low humidity. As shown in graph 2, the influence of humidity on the Cl21 is considerably less than MOS sensors.

Sensor selectivity

MOS sensors typically interfere with other gases and are rarely specific. Cross interferences occur with alcohol, cleaning detergents, water, carbon monoxide and many other substances. Interfering alarms become a nuisance that can lead to work stoppage and expensive shut downs. In graph 3, the cross-sensitivities of conventional sensors and the Cl21 are plotted on a logarithmic axis.







Hydrogen Ethylene Water Propanole Benzole SO₂ 200 ppm 100 ppm (50% r.F. 55°C) 20 ppm 1,000 ppm 100 ppm Substance and concentration

Pressure: 90 to 110 kPa Output signal: 0.2-1 mA or 4-20 mA Power supply: 10 to 30 V DC (300 mA maximum) Shielded cable: 3 wire x 18 AWG for up to 500 yards Protection class: IP54 - Casing Dimensions: 3.9 x 3.9 x 2.2 in / 100 x 100 x 57 mm (HxWxD) Weight: 13.05 oz / 370 g Approvals / Certifications:

c-CSA-us CSA C22.2 No. 205-M1983 UL 916

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