CI21 Transmitter
for Ammonia Detection

- Long sensor life
- Wide temperature range (-35˚ to +130˚ F) no additional heater required
- Low cross sensitivity
- Eliminates costly false alarms
- Lower cost of ownership

The charge carrier injection (CI21) sensor is a progressive development to improve upon the current ammonia refrigeration detection methods. With CI21 technology the life of our sensor is no longer limited to the ammonia exposure levels. This reduces replacement costs associated with electrochemical sensors.

The 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 CI21 transmitter is an advanced development to which all other ammonia transmitters will be compared.

The New Ammonia Standard

Influence of temperature

Utilizing a controlled sensor voltage, the CI21 maintains a constant internal temperature allowing accurate readings without additional heating components.

Graph 1 compares temperature behaviors of metal oxide (MOS) and electrochemical sensors with the CI21. The alarm threshold is set at 200 ppm, each of the sensors was calibrated to 200 ppm NH3 at 25° C (77° F). At lower temperatures, the response of the CI21 is extremely accurate whereas the MOS and electrochemical sensors drift considerably.

If calibration is performed at lower temperatures, the identification lines are shifted 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.

Influence of humidity

Fluctuating humidity levels are no longer an issue with the CI21. MOS sensors require a minimum humidity level in order to respond to leaks of ammonia. The CI21 does not!

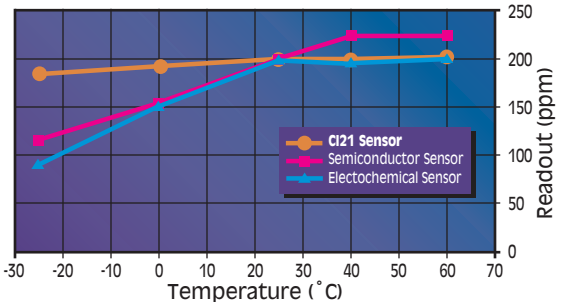
Low humidity is a typical condition of refrigeration areas due to lower temperatures. With the CI21, a direct calibration with ammonia test gas can be accomplished with low humidity. As shown in graph 2, the influence of humidity on the CI21 is considerably less compared with MOS sensors.

Selectivity of sensors

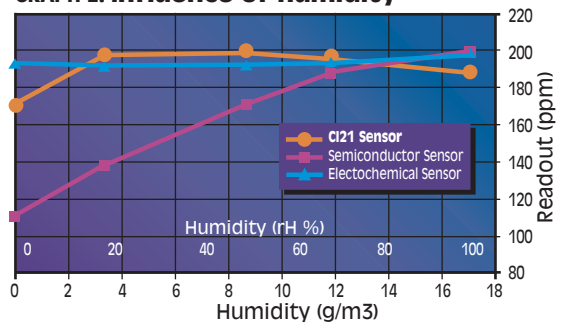
MOS sensors typically work with broad cross interferences to other gases and are rarely specific. These cross interferences occur with alcohol, cleaning detergents, water, carbon monoxide and many others. These cross-interfering alarms become a nuisance that lead to work stoppage and expensive shut downs.

In graph 3, cross sensitivities of conventional sensors and the CI21 are plotted on a logarithmic axis.

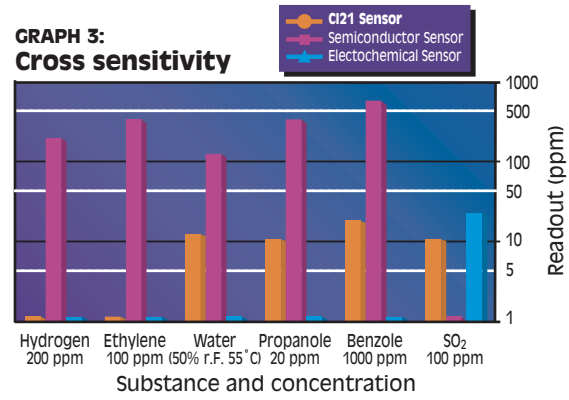
GRAPH 1: Behavior of temperature
after calibration with 200 ppm at 50 % r.M. (All sensors without temperature compensation)



GRAPH 2: Influence of humidity



GRAPH 3:
Cross sensitivity



Technical Data

CI21 remote transmitter

Gas
Ammonia (NH_3)

Ranges
0 (20) to 200 ppm
0 (30) to 1,000 ppm
0 (30) to 1% volume

Gas supply
Diffusion

Humidity
0 to 99% r.h.

Pressure
800 to 1,200 mbar

Temperature range
-35 ˚F (external sensor units) to +130˚ F
-25 ˚F (internal sensor units) to +130˚ F

Shielded cable
3 wire x 18 AWG for up to 500 yards

Output signal
0.2 to 1 mA or 4 to 20 mA

Power supply
10 to 32 V DC (300 mA maximum)

Expected sensor life
Greater than 3 years

Sensor warranty
2 years

Casing protection
NEMA 4X (IP54)

Weight
16 oz (450 g)

Dimensions
3.2 x 3 x 2.2 inches (WxHxD)

Specifications subject to change without notification

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