



SE
SENSOR
ELECTRONICS

SEC IREvolution™

Infrared Ammonia Gas Detector

HART
COMMUNICATION PROTOCOL

Document #1460034 Revision A

Features

- *Reliable infrared sensing technology*
- *Virtually maintenance free*
- *Low cost of ownership, over ten years operating life*
- *Immune to poisoning and etching*
- *Designed for harsh environments*
- *Explosion proof*
- *Fast response time*
- *Smart calibration*
- *Self-compensating optics, pressure and temperature (U.S. Patents 6,414,310 and 7,132,657)*
- *No moving parts*
- *Heated optical chamber*
- *Low power consumption*
- *Operates in constant Ammonia background - No damage to sensor*
- *Operates in anaerobic atmospheres*
- *Fault indications for all failure states*
- *Frequent calibrations are not required. Zero calibrate every 12 months.*
- *4 to 20 mA output, HART® enabled option*
- *Digital display option available*
- *Can be coupled with SEC 3100 and 3120 transmitter for network applications*

Applications

The SEC IREvolution™ ammonia detectors are designed to be used as an upgrade in the same applications where electrochemical sensors have been applied.

- Refrigeration
- Power generation
- Compressors
- Poultry farms
- Cold storage
- Ice arena refrigeration room
- Anhydrous ammonia
- Chemical plant

Operation / Description

SEC IREvolution™ is a complete self contained optical ammonia gas detector. The sensing and reference elements are self-compensating for optical integrity and other signal inhibitors. The industry standard 4 - 20 mA analog output provides remote alarm, fault and calibration signals.

Specifications

Model: Sensor Electronics Corporation
SEC 5000 IREvolution™ Infrared
Ammonia Gas Detector

Ranges Available:

Range

- 0-500 PPM (11")
- 0-1000 PPM (11")
- 0-2500 PPM (11")
- 0-10,000 PPM (5")
- 0-10% VOL (5")
- 0-1% VOL (5")
- 0-15% VOL (5")
- 0-20% VOL (5")

Please note that this list is not all-inclusive. If you have a different range please contact Sensor Electronics Corporation.

Detection Method: Diffusion. Compatible with Optional Sample-Draw Accessories. (requires a minimum of 1 liter per minute flow rate.)

Output (analog):

4-20 mA (Source type), HART Optional
max. 1000 Ohm load at 24 VDC supply voltage (including field wiring)

Response Time:

T50 < 18 seconds
T90 < 38 seconds

Construction:

Anodized aluminum

Accuracy:

+/- 5% of value or 1.0% of full scale (which ever is greater)

Repeatability:

+/- 2% of value

Ambient Temperature Range (Ta):

-40° to +50°C at 0 to 99% RH (non-condensing)

Operating Range:

18 to 32 VDC measured at the detector head

Power Consumption:

5 Watts Max

Current Draw: (at 24VDC)

Average: 210 mA Peak: 400 mA

U.S. Patent: 6,414,310

7,132,657

Installation Category: Cat. I, Pollution Degree 2

Dimensions: Length 11" Diameter 2.75" Weight 3 lbs.
Length 5" Diameter 2.75" Weight 1.8 lbs.

Certification:

IECEX: Ex db op is IIB T5 Gb

| Unit Status Chart | |
|-------------------|--------------------------|
| Current Output | Status |
| 4-20 mA | Normal measuring mode |
| 0.6 mA | Unit Fault |
| 0.8 mA | Reference channel fault |
| 0.9 mA | Analytical channel fault |
| 0.7 mA | Unit warm up |
| 1.0 mA | Optics fault |
| 1.2 mA | Zero drift fault |
| 1.6 mA | Calibration fault |
| 2.0 mA | Unit spanning |
| 2.2 mA | Unit Zeroing |
| 4.0 mA | Zero gas level |
| 5.6 mA | 10% LEL |
| 8.0 mA | 25% LEL |
| 12 mA | 50% LEL |
| 16 mA | 75% LEL |
| 20 mA | 100% LEL |
| 20.1 – 23 mA | Over range (>100%) |

| Other Products Available |
|-------------------------------------|
| Gas Detectors – Explosion proof |
| Gas Detectors – Non-explosion proof |
| Infrared Gas Detectors |
| Process Gas Analyzers |
| Dual Gas Analyzers |
| Portable Fire Suppression Systems: |
| Dry Chemical |
| Halotron |
| Twin Agent |
| Stationary Fire Suppression Systems |



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Sensor Electronics Corporation reserves the right to alter specifications without prior notice.