Operation / Description

SEC Millenium is a complete self contained optical hydrocarbon 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.

Features

- Reliable infrared sensing technology
- Virtually maintenance free
- Low cost of ownership, over five years operating life
- Immune to poisoning and etching
- Designed for harsh environments
- Explosion proof
- Rugged stainless steel construction
- Fast response time
- Smart calibration
- Patented self-compensating optics
- No moving parts
- Heated optical chamber
- Low power consumption
- Operates in constant hydrocarbon background
- Operates in anaerobic atmospheres
- Fault indications for all failure states
- Routine calibrations are not required
- 4 to 20 mA output
- 0 to 100% LFL detection range
- Can be coupled with SEC 3100 transmitter for network applications
- RS-485 communication link available
- Digital Display option available

Applications

The SEC Millenium hydrocarbon detectors are designed to be used as an upgrade in the same applications where catalytic bead sensors have been applied.

- Refineries
- Drilling and production platforms
- Fuel loading facilities
- Oil well logging
- LNG/LPG processing and storage facilities
- Gas turbines
- Chemical plants
- Compressor stations
- Wastewater treatment facilities
- Transportation facilities
Specifications

**Model:** Sensor Electronics Corporation  
SEC MILLENIUM Infrared Hydrocarbon ETOAMB Gas Detector

**Available gases:** Ethylene Oxide

*Please note* that this list is not all-inclusive. The SEC MILLENIUM can be calibrated for most hydrocarbons, provided a calibration gas is available. For more information please contact Sensor Electronics Corporation.

**Part Number:**  
49002200050L012 (0-50% LEL)  
49002200100L012 (0-100% LEL)

**Detection Method:** Diffusion - Optional sample draw  
(requires a minimum of 1 liter per minute flow rate.)

**Output (analog):**  
4-20 mA (Source type),  
max. 1000 Ohm load at 24 VDC supply voltage

**Response Time:**  
T50 < 5 seconds  
T90 < 10 seconds

**Construction:**  
316 stainless steel.  
Class 1, Division 1, Groups B, C and D

**Accuracy:**  
+/- 3% LFL, 0 to 50% LFL (Lower Flammable Limit)  
+/- 5% LFL, 51 to 100% LFL

**Operating Temperature Rating:**  
-40˚ to +70˚C at 0 to 99% RH (non-condensing)

**Operating Range:**  
18 to 32 VDC measured at the detector head

**Power Consumption:**  
5 Watts Max

**Max Current Draw:** (at 24VDC)  
Average: 210 mA  
Peak: 400 mA

**Approvals:** C22.2 No. 152-M1984 (R1997)  
Performance Tested

**Installation Category:** Cat. I, Pollution Degree 2

**Weight:** 5 lbs. (2.3 kg.)

### Unit Status Chart

<table>
<thead>
<tr>
<th>Current Output</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-20 mA</td>
<td>Normal measuring mode</td>
</tr>
<tr>
<td>0.0 mA</td>
<td>Unit Fault</td>
</tr>
<tr>
<td>0.2 mA</td>
<td>Reference channel fault</td>
</tr>
<tr>
<td>0.4 mA</td>
<td>Analytical channel fault</td>
</tr>
<tr>
<td>0.8 mA</td>
<td>Unit warm up</td>
</tr>
<tr>
<td>1.0 mA</td>
<td>Optics fault</td>
</tr>
<tr>
<td>1.2 mA</td>
<td>Zero drift fault</td>
</tr>
<tr>
<td>1.6 mA</td>
<td>Calibration fault</td>
</tr>
<tr>
<td>2.0 mA</td>
<td>Unit spanning</td>
</tr>
<tr>
<td>2.2 mA</td>
<td>Unit Zeroing</td>
</tr>
<tr>
<td>4.0 mA</td>
<td>Zero spanning</td>
</tr>
<tr>
<td>5.6 mA</td>
<td>10% LEL</td>
</tr>
<tr>
<td>8.0 mA</td>
<td>25% LEL</td>
</tr>
<tr>
<td>12 mA</td>
<td>50% LEL</td>
</tr>
<tr>
<td>16 mA</td>
<td>75% LEL</td>
</tr>
<tr>
<td>20 mA</td>
<td>100% LEL</td>
</tr>
<tr>
<td>20.1 – 23 mA</td>
<td>Over range (&gt;100%)</td>
</tr>
</tbody>
</table>

### 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