Control Instruments Corporation

Product Specifications

Oxygen Sensor for SmartMaxII

Sensor Design
The Oxygen Sensor employs electrochemical technology. The sample diffuses into a micro fuel cell, where it chemically reacts to produce an electrical current. The micro fuel cell is designed so that the current produced is proportional to the concentration of oxygen present. The output signal is a linear mA output and readings are displayed as percent by volume.

Construction
The sensor assembly consists of the micro fuel cell housed in an aluminum sensor body which connects to a junction box for field wiring. A collar protects the sensor from environmental conditions and also provides a means of introducing calibration gas.

The micro fuel cell employs a capillary diffusion barrier which eliminates the possibility of puncturing the membrane and destroying the cell. The cell is a rugged and stable design that is less sensitive to temperature and pressure variations than other electrochemical cells.

Sampling System
The sensor relies on diffusion for sampling. In the diffusion mode the sensor detects oxygen by direct sampling of the atmosphere through the sensor flame arrestor.

Performance
The Oxygen Sensor exhibits high accuracy, excellent repeatability, and long-term stability for zero and span readings.

Factory Tested as a Complete System
The sensor is completely factory assembled, calibrated and tested with its control monitor prior to shipment.

Standard Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>SNR477</td>
</tr>
<tr>
<td>Standard Range</td>
<td>0–25%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Response Time</td>
<td>20 seconds to 95% of scale</td>
</tr>
<tr>
<td>Assembly Rating</td>
<td>Class I, Division 1</td>
</tr>
<tr>
<td>Assembly Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Operating Life</td>
<td>2 years in air</td>
</tr>
<tr>
<td>Storage life in container</td>
<td>6 months</td>
</tr>
<tr>
<td>Temperature Limits</td>
<td>-20°C to 50°C</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Ambient ±10%</td>
</tr>
<tr>
<td>Pressure effect</td>
<td>Negligible</td>
</tr>
<tr>
<td>Humidity range</td>
<td>0 to 90% RH</td>
</tr>
<tr>
<td>One-way line length</td>
<td>5,000 feet 14 AWG</td>
</tr>
<tr>
<td>Interconnection wiring</td>
<td>3 wires</td>
</tr>
<tr>
<td>Output Signal</td>
<td>mA DC into SmartMaxII monitor</td>
</tr>
</tbody>
</table>

Cross Sensitivity to:

<table>
<thead>
<tr>
<th>Gas</th>
<th>SNR477 Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>No effect</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>No effect</td>
</tr>
<tr>
<td>100% Hydrogen</td>
<td>Up to 2%</td>
</tr>
<tr>
<td>20% Carbon Monoxide</td>
<td>Up to 0.5%</td>
</tr>
</tbody>
</table>