• Used with Moisture Series Analyzers to measure oxygen concentration in gases from trace to percent levels.

• Ultralow range for ultrapure gas applications is sensitive to < 5 ppb oxygen.
  • Sensors available for indoor/outdoor water- and dust-tight enclosures.

• No gas scrubbing equipment needed for acid gas applications.
  • No periodic replacement or reconditioning of cells is needed.

• Explosionproof sensors available for hazardous areas.
  • VCR fittings assure system cleanliness & integrity.
The Moisture Series Nondepleting Oxygen Cell: state of the art, redefined.

Periodic replacement & reconditioning eliminated.

The sensor operates on a simple coulometric process in which oxygen in the sample gas is reduced in an electrochemical cell. Unlike conventional electrochemical oxygen cells, the electrodes in this advanced cell are non-depleting, so they don't undergo chemical changes as oxygen is measured. As a result, periodic cell replacement or reconditioning is not required.

Parts per billion oxygen measurement.

For oxygen measurement in ultrapure gas applications, an ultralow range sensor that is sensitive to less than 5 ppb is available. The sensor is equipped with VCR fittings to ensure system cleanliness and integrity.

Withstands acid gases.

For most applications where acid gas constituents are present, the patented STAB-EL™ electrolyte option eliminates the need for troublesome gas scrubbing equipment by permitting direct exposure of the cell to the gas stream. These cells have a reputation for reliability in applications which are too difficult for most other oxygen sensors.

How It Works.

The sample gas diffuses through the Bi-Strata™ diffusion barrier to the cathode, which is in contact with the electrolyte solution. At the cathode, oxygen is reduced to hydroxyl ions. With electrical potential provided by the Panametrics analyzer and assisted by the potassium hydroxide electrolyte, the ions migrate to the anode where they are oxidized. The current generated within the sensor cell, which is directly proportional to oxygen concentration, is then measured, analyzed and displayed in proper units by the Panametrics analyzer.

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*NOTE:

This dimension is dependent upon the oxygen range of the sensor used and varies as follows:

<table>
<thead>
<tr>
<th>Range</th>
<th>Dimension in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 5000 ppm</td>
<td>2.74 (69.6)</td>
</tr>
<tr>
<td>1%</td>
<td>2.85 (72.4)</td>
</tr>
<tr>
<td>25%</td>
<td>2.98 (75.7)</td>
</tr>
<tr>
<td>2.5%, 5%, 10%</td>
<td>3.10 (78.7)</td>
</tr>
</tbody>
</table>

Dimensions: inches (mm)
Sensor placement.

The basic sensor is available separately. However, for NEMA 4 applications requiring indoor/outdoor water- and dust-tight enclosures, an R4 sensor is available that is housed in a weatherproof enclosure with integral mounting flanges. For NEMA 7 hazardous area services, an R7 sensor is available. It is housed in an explosionproof, aluminum electrical box that is rated for hydrogen service, and in accordance with NEC standards, it qualifies for Class I, Groups B,C,D; Class II, Groups E,F,G; and Class III, all groups.

Specifications.

Type:
Nondepleting electrolytic oxygen sensing cell.

Available cells:

**PPB** _O_2 range:
- L: 0 to 500 ppbv/5 ppmv/50 ppmv.<br>
- Ranges for each cell are software selectable in Panametrics analyzers.

**PPM** _O_2 ranges:
- A: 0 to 1/10/100 ppmv.<br>
- B: 0 to 10/100/1000 ppmv.<br>
- C: 0 to 100/1000/10,000 ppmv.<br>
- D: 0 to 50/500/5000 ppmv.<br>
- Ranges for each cell are software selectable in Panametrics analyzers.

**Percent O_2** ranges:
- A: 0 to 5%.<br>
- B: 0 to 10%.<br>
- C: 0 to 25%.<br>

Accuracy:
± 1% full scale (ranges > 0 to 2.5 ppmv).<br>
± 5% full scale (ranges < 0 to 2.5 ppmv).<br>

Sensitivity:
< 5 ppb (0 to 500 ppbv range).<br>

Response time:
Sensor responds instantaneously to _O_2 change.<br>
Equilibrium time is application specific.

Ambient temperature:
0° to 49°C.<br>

Background gas compatibility:

**Standard cell:**
Ultrapure inert gases.

**STAB-EL™ cell:**
All gas compositions including those containing “acid” gases such as CO_2, H_2S, Cl_2, NO_x, SO_2, etc.

**Note:** STAB-EL option required for all gases except ultrapurified gases to pure gas processes.

Hazardous area classification:
Intrinsically safe when connected to a Panametrics Moisture Series Analyzer (rack-, bench- or panel-mount Series 1, 2, or 3 with serial no. 2001 or above) in accordance with the Panametrics User's Manual. The oxygen cell connection to the analyzer must comply with IP20 protection requirements. BAS No. Ex96D2191X.

European compliance:
This unit complies with EMC Directive 89/336/EEC and 73/23/EEC Low-Voltage Directive (Installation Category II, Pollution Degree 2) when connected to a Moisture Image® Series 1, Moisture Image® Series 2, or Moisture Monitor™ Series 3 analyzer.

Sample requirements:

**Inlet pressure:**
- -0.5 psig (use compressor).<br>
- -0.5 psig to 0.2 psig (use pump).<br>
- 0.2 to 1.0 psig (standard range).<br>
- 1.0 to 60 psig (use valve or regulator).<br>
- > 60 psig (use pressure regulator).<br>

**Flow rate:**
0.5 to 1.5 L/min.<br>

**Moisture:**
No limits (avoid condensation).