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# Industrial Oxygen Sensors



**Southland Sensing Ltd.**





## TRACE AND PERCENT — PRECISION FUEL CELL OXYGEN SENSORS



P/N: TO2-1

Min Range: 0 - 10 PPM  
Max Range: 0 - 10,000 PPM  
Signal Output: 330 - 585  $\mu$ A  
Expected Life: 18 - 24 Months  
Warranty: 9 Months

Field Replacement For:

Teledyne	B-2C
All	PSR-12-223
GE Sensing	OX-1



P/N: TO2-2

Min Range: 0 - 10 PPM  
Max Range: 0 - 10,000 PPM  
Signal Output: 330 - 585  $\mu$ A  
Expected Life: 18 - 24 Months  
Warranty: 9 Months  
\*\* Required for CO<sub>2</sub> > 0.5%

Field Replacement For:

Teledyne	A-2C
All	XLT-12-123
GE Sensing	OX-2



P/N: PO2-1

Range: 0 - 100%  
Signal Output: 245 - 385  $\mu$ A  
Expected Life: 12 Months  
Warranty: 9 Months

Field Replacement For:

Teledyne	B-1, B-3
All	PSR-11-21
GE Sensing	OX-3



P/N: PO2-4

Range: 0 - 100 %  
Signal Output: 140 - 260  $\mu$ A  
Expected Life: 12 Months  
Warranty: 9 Months  
\*\* Required for CO<sub>2</sub> > 0.5%

Field Replacement For:

Teledyne	A-3, A-5
All	XLT-11-15
GE Sensing	OX-4

# Southland Sensing

**Principal of Operation:** Southland Sensing's line of precision fuel cell oxygen sensors can be considered as a lead-oxygen battery which incorporates a lead anode, an oxygen cathode made of gold and an alkaline or acid electrolyte. Oxygen Molecules enter the electrochemical cell through a non-porous fluorine resin membrane and are reduced at the gold electrode. The current that flows between the electrodes is directly proportional to the oxygen concentration in the gas mixture being measured.

All models are sealed, disposable, aqueous based galvanic cell designed to generate a linear electrical current output directly proportional to the partial pressure of oxygen in a gaseous sample stream. The sensors are maintenance free requiring no replacement of membranes or electrolyte and no cleaning of electrodes. For convenience, when expired the precision fuel cell oxygen sensors are discarded.

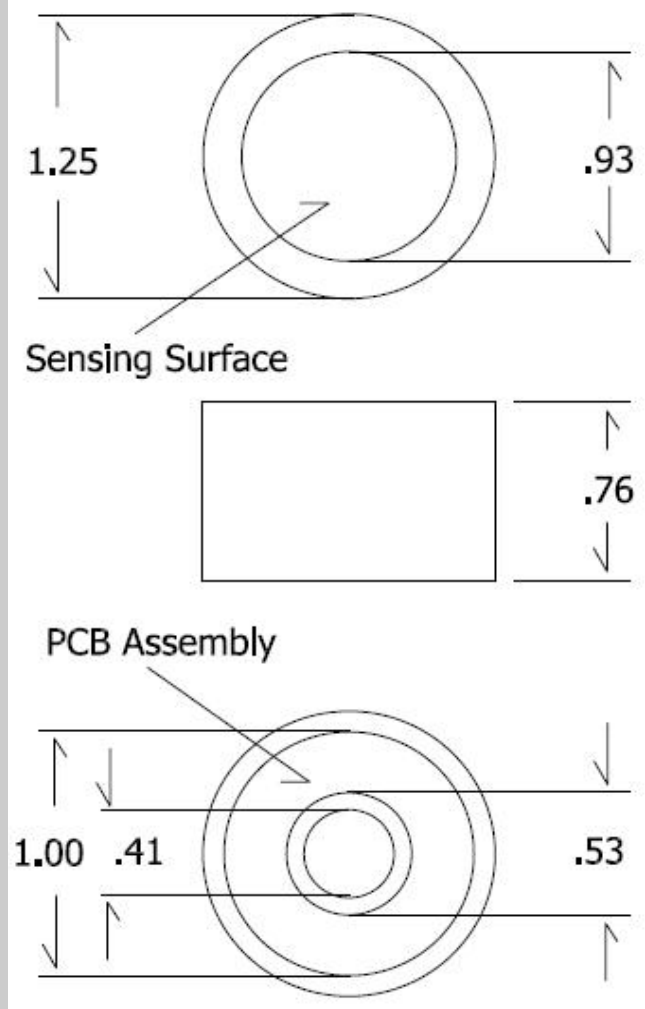


## Precision Fuel Cell Chemical Reaction

- (1) Cathodic reaction:  $4e^- + 4H^+ + O_2 \rightarrow 2H_2O$
- (2) Anodic reaction:  $2Pb + 2H_2O \rightarrow 2PbO + 4H^+ + 4e^-$
- (3) Overall reaction:  $2Pb + O_2 \rightarrow 2PbO$

## Industrial Applications

Industrial Gas Plants,  
PSA, VPSA, Specialty Gas  
Petrochemical  
Nuclear  
Metals / Steel / Heat Treating  
Chemical & Chemical Storage  
Aerospace & Defense  
Natural Gas Extraction & Processing  
Coal Bed Methane  
Landfill Gas Monitoring  
Bio-Research & Glove Box  
Light Bulb Manufacturing  
Semiconductor  
Area Monitoring  
Welding  
Hydrogen Production  
Glass & Window Manufacturing  
Food & Beverage  
Smog Check Stations  
Ethylene Production  
CO<sub>2</sub> production  
Solar Energy





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