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## SULFUR DIOXIDE SENSOR

## MODEL TOX-SO<sub>2</sub>/ANA

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### FEATURES:

- Linear 4-20mA output signal
- Automatic low sensitivity check
- Power up & calibration delays
- Convenient diagnostics

### BENEFITS:

- Industry standard signal can be directed to most controllers.
  - Reliable operation and monitoring integrity.
  - False alarm avoidance.
  - Simple maintenance.
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### GENERAL DESCRIPTION:

The Toxalert sulfur dioxide sensor module is designed for use in conjunction with Toxalert and other standard 4-20 mA loop controllers. The module sources an output current in proportion to the sulfur dioxide concentration. Toxalert utilizes sulfur dioxide sensors that are electrochemical cells. They are the self-powered, diffusion limited, metal-air battery type. The rate at which atmosphere gases can get to the electrode through a diffusion barrier is then solely dependent on concentration of gases in the atmosphere. Current is generated that is proportional to the rate of consumption of sulfur dioxide in the cell.



Previous electrochemical sensors of this general type have used very thin plastic membranes. This results in handling and stability problems and high temperature and pressure coefficients which limit the usefulness of the device. The Toxalert sensor takes a radically different approach by allowing gas to diffuse into the sensor through a simple capillary. Not only is this extremely robust and stable, but entirely different diffusion laws apply resulting in low temperature and pressure coefficients and the capability to monitor gas as a percent volume.

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**SPECIFICATIONS:**

- **Type:** Electrochemical cell-diffusion barrier type
  - **Range:** 0 to 100 ppm sulfur dioxide in air
  - **Response Time:** 20 seconds to 90% indication
  - **Typical Life:** Two years in normal service
  - **Operating Temperature :** 4° to 122°F  
-20° to 50°C
  - **Relative Humidity:** 15 to 90% RH non-condensing
  
  - **Electrical Data:**
    - Input Voltage:** 14 – 30 vdc
    - Input Power:** 1.4 Watt
    - Input Current:** 40 mA @ 28 vdc
    - Loop Resistance:** 800 Ohms
  - **Unit Construction:**
    - Mounting:** Conduit ¾" NPT or flexible cable
    - Housing:** Explosion proof (Nema 7)  
(Div 1, Class 1, Groups C, D)
- Output Signal:** Linear 4 to 20 mA  
**Signal Output-Trouble:** 0 mA  
**Wiring:** 3 wire non-isolated
- Physical:** H: 7.6", D: 4.6", W: 4.2"  
**Weight:** 2.7 pounds

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**Gas Sensor Modules available from Toxalert include:**

Ammonia (NH<sub>3</sub>)  
Combustible Gas  
Carbon Monoxide (CO)  
Carbon Dioxide (CO<sub>2</sub>)  
Chlorine (Cl<sub>2</sub>)  
Oxygen (O<sub>2</sub>)  
Hydrogen (H<sub>2</sub>)  
Hydrogen Chloride (HCl)  
Hydrogen Cyanide (HCN)  
Hydrogen Sulfide (H<sub>2</sub>S)  
Nitric Oxide (NO)  
Nitrogen Dioxide (NO<sub>2</sub>)  
Ethylene Oxide (ETO)  
Refrigeration  
And more....