Toxalert Tox4 and ToxControl Controllers and

GENERAL DESCRIPTION:
The TOX45-XX Gas Sensor Module utilizes the electrochemical cell to monitor for the specified gas over various gas specific ranges. This compact Module requires minimal maintenance. Internal continuous self-diagnosis will automatically indicate any fault problems. The TOX45-XX is best in class providing all the built-in features desired by instrumentation and safety professionals, including:

- Industry’s longest calibration interval of 180 days
- 2-wire loop powered for easy installation and direct interface to common PLC and DCS as well as Toxalert controllers.
- Integral scrolling LCD 2-line, 16 character display
- Non-intrusive one-person calibration
- Aluminum or 316 Stainless Steel enclosure
- 4-20 mA output
- Long sensor life
- Robust RFI immunity
- Ability to rotate face plate to enable the enclosure to be mounted in any orientation.

How It Works
Electrochemical sensors are fuel cell-like devices consisting of an anode, cathode, and electrolyte. The components of the cell are selected so a subject gas, allowed to diffuse into the cell, will cause a chemical reaction and generate a current. The cells are diffusion limited so the rate the gas enters the cell is solely dependent on the gas concentration. The current generated is proportional to the rate of consumption of the subject gas in the cell.

TOXALERT’s electrochemical sensors provide improved reliability by allowing the gas to diffuse into the sensor through a capillary port, rather than diffusing through membranes. The result is an extremely stable sensor with very low temperature and pressure coefficients and the capability to monitor gas as ppm (toxics).
2-Wire Toxic Gas Sensor Module Model TOX45-XX

SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Performance</th>
<th>Max. Gas Range (1)</th>
<th>Resolution</th>
<th>Response Time (2)</th>
<th>Sensor Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOX45-03 O₂</td>
<td>0 - 25 % Vol</td>
<td>0.2 % Vol.</td>
<td>&lt; 10 Seconds</td>
<td>20 Months</td>
</tr>
<tr>
<td>TOX45-04 CO</td>
<td>0 - 1000 PPM</td>
<td>0.5 PPM</td>
<td>&lt;25 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-05 H₂S</td>
<td>0 - 100 PPM</td>
<td>0.1 PPM</td>
<td>&lt;30 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-06 Cl₂</td>
<td>0 - 10 PPM</td>
<td>0.1 PPM</td>
<td>&lt;60 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-08 ClO₂</td>
<td>0 - 3 PPM</td>
<td>0.1 PPM</td>
<td>&lt;60 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-10 SO₂</td>
<td>0 - 100 PPM</td>
<td>0.5 PPM</td>
<td>&lt;20 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-12 N₂O₅</td>
<td>0 - 20 PPM</td>
<td>0.2 PPM</td>
<td>&lt;35 Seconds</td>
<td>2 Years</td>
</tr>
<tr>
<td>TOX45-25 NH₃</td>
<td>0 - 100 PPM</td>
<td>1.0 PPM</td>
<td>&lt;30 Seconds</td>
<td>(3)</td>
</tr>
<tr>
<td>TOX45-26 HF</td>
<td>0 - 10 PPM</td>
<td>1.0 PPM</td>
<td>&lt;90 Seconds</td>
<td>(3)</td>
</tr>
</tbody>
</table>

(1) Other ranges available
(2) To 90% range
(3) Ammonia and HF sensor
Requires electrolyte recharge up to one (1) Year “intervals”.

Output:
- Display: LCD, 2-line, 16 characters
- Signal Output: 2-wire sensor powered analog 4-20mA (Trouble: 3.6 mA)
- Loop Resistance: 800 ohm

Electrical Data:
- Power Consumption: 0.2watts
- Connection Type: 2-wire, loop powered
- Input Voltage: 24 VDC nominal: 14-30 VDC
- RFI/EMI Protection: EN50081-2, EN50082-2

Operating Range:
- Ambient Temp Range:
  - Standard: -4º to 122º F (-20º to 50ºC)
  - TOX45-25/26: 14º to 113º F (-10º to 45ºC)
- Extended Temp: Sensor and 4-20mA will continue to operate to -40ºF (-40ºC) but the LCD display will decay over time if exposed to temperature below -4º (-20ºC) for significant time (not for TOX45-25)
- Storage Temp: -4º to 122º F (-20º to 50ºC)

Relative Humidity:
- Standard: 15-90%
- TOX45-25 NH₃: 20-90%

Construction:
- Dimensions: 7.0 H X 3.6 W x 4.0 D
  (17.8 x 9.1 x 11.2cm)
- TOX45-25/26: 8.4 H x 4.4 W x 3.9 D
  (21.3 x 11.2 x 9.9 cm)
- Weight: 2.2 lb. (1.0 Kg) Al
  TOX45-25/26 3.0 lb. (1.3 Kg) Al
  5.0 lb. (2.3 Kg) SS
- Enclosure: Nema 4X, Nema 7
  Aluminum or Stainless Steel
- Limited Warranty: 1 Year

ORDERING INFORMATION:

<table>
<thead>
<tr>
<th>Model</th>
<th>Gas</th>
<th>Enclosure</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOX45</td>
<td>-03 = O₂</td>
<td>-A1 (Aluminum)</td>
<td>4511-00 Rainshield</td>
</tr>
<tr>
<td></td>
<td>-04 = CO</td>
<td>-S1 (Stainless Steel)</td>
<td>4511-02 Rainshield with calibration port</td>
</tr>
<tr>
<td></td>
<td>-05 = H₂S</td>
<td>4558-01 Calibration Adaptor, Standard</td>
<td></td>
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<tr>
<td></td>
<td>-06 = Cl₂</td>
<td>4558-51 Calibration/configuration magnetic tool</td>
<td></td>
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<td></td>
<td>-08 = ClO₂</td>
<td>4560-00 Calibration gas delivery fitting</td>
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<tr>
<td></td>
<td>-10 = SO₂</td>
<td>4560-00 Calibration gas delivery fitting</td>
<td></td>
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<tr>
<td></td>
<td>-12 = NO₂</td>
<td>4560-00 Calibration gas delivery fitting</td>
<td></td>
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<tr>
<td></td>
<td>-25 = NH₃</td>
<td>4560-00 Calibration gas delivery fitting</td>
<td></td>
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<tr>
<td></td>
<td>-26 = HF</td>
<td>4560-00 Calibration gas delivery fitting</td>
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</tbody>
</table>

Example: TOX45-04-A1 = CO Sensor w/ Aluminum enclosure