Product Data Sheet

ELECTROCHEMICAL H₂S-50 SENSOR (4 SERIES) (P/N:052-0400-000)

- **Description**
  The sensor is designed for the measurement of H₂S concentration in gas phase. It can be used as the pin to pin replacement of the standard 4 series electrochemical H₂S sensor.

- **Performance Characteristics**
  Nominal Range: 0~50 ppm
  Maximum Overload: 100 ppm
  Sensitivity (20 °C): 1.20 ± 0.25 μA/ppm
  Response Time (T90): ≤ 25 s
  Zero Signal (20 °C): < ±0.4 μA
  Baseline Shift (-40 °C ~ 50 °C): < 0.2 ppm
  Resolution: 0.1 ppm
  Linearity: Linear up to 50 ppm
  Bias Voltage: 0 mV

- **Environmental**
  Temperature Range: -40 °C ~ 50 °C
  Pressure Range: 1 atm ± 10 %
  Humidity Range: 15 % ~ 95 %RH non-condensing

- **Life Time**
  Long Time Output Drift: < 2 % signal/month
  Recommended Storage Temp: 10 °C ~ 30 °C
  Expected Operating Life: 2 years in clean air
  Storage Life: 6 months in original packaging
  Warranty: 12 months

- **Intrinsic Safety Data**
  Maximum Current at 100 ppm H₂S: < 0.2 mA
  Maximum O/C Voltage: 1.3 V
  Maximum S/C Current: < 1.0 A

- **Physical Characteristics**
  Housing Material: ABS
  Weight (Nominal): 5 g
  Orientation: None

- **Installation**
  Output signals from the sensor pins are different. Inappropriate use of the pins in product design will affect the sensor functionality. Exposure to high concentrations of solvent vapors should be avoided under any condition. Mechanical overstress may cause deformation or cracks of the plastic enclosure of the sensor. If the sensor is used in extreme environmental conditions, please contact SemeaTech for more details.

- **Note**
  The performance data in this document is conducted by using SemeaTech recommended test circuitry and test environment at 20 °C, 50 %RH and 1 atm.
  Sensor performance varies under different environmental conditions, please contact SemeaTech for more details.

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All dimensions in mm
All tolerances ±0.10 mm unless otherwise stated
• Cross-Sensitivity Data

<table>
<thead>
<tr>
<th>Gas</th>
<th>Concentration (ppm)</th>
<th>Output signal (ppm H₂S equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide</td>
<td>100</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>20</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>10</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Nitric Oxide</td>
<td>50</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Ammonia</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>1000</td>
<td>~5</td>
</tr>
<tr>
<td>Ethylene</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Chlorine</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Ethanol</td>
<td>5000</td>
<td>&lt;1.5</td>
</tr>
</tbody>
</table>

Note: The cross sensitivity are including but not limited to the above gases. It may also respond to other gases. The data in the table above may vary from different batches of sensors and the changes of test environment. Calibration with cross sensitivity gas is not recommended.

• Temperature Data

![Temperature Performance of SemeaTech 4R H2S-50 Sensor](image)

• Safety Note

The sensor is designed to be used in certain instruments for life critical applications. To ensure the sensor functioning per its specifications inside the instrument, it is required to read the instrument user's guide carefully and comply with the calibration procedures by using certified target calibration gas before each use. Failure to do so may cause serious injury and fatality. Please do not open the housing because the electrolyte stored inside is harmful.

It is highly recommended for customers to validate the sensor performance using this document as a reference for their product designs or applications.