ME4-Cl₂
Electrochemical Chlorine Sensor

Manual
(Model: ME4-Cl₂)

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Zhengzhou Winsen Electronics Technology Co., Ltd
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Zhengzhou Winsen Electronics Technology CO., LTD
**ME4-Cl₂ Electrochemical Chlorine Sensor**

ME4-Cl₂ chlorine gas sensor is constant potential electrolysis type. Oxidation-reduction reaction with chlorine gas and oxygen take place respectively on the working electrode and on the counter electrode. The process releases electric charge and generates current. The current is in direct proportion to the concentration of chlorine gas and conform to faraday's law. So the concentration of the target gas could be got by measuring the value of current.

**Features**

Low power consumption, high precision, high sensitivity, wide linear range, good anti-interference ability, excellent repeatability and stability.

**Main Applications**

It is used for chlorine gas detection in the occasions such as chemical engineering, medicine and environmental protection field.

**Technical Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection Gas</td>
<td>Chlorine Gas (Cl₂)</td>
</tr>
<tr>
<td>Detection Range</td>
<td>0~20ppm</td>
</tr>
<tr>
<td>Max range</td>
<td>250ppm</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>(1±0.25)µA/ppm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1ppm</td>
</tr>
<tr>
<td>Response Time (T₉₀)</td>
<td>≤60S</td>
</tr>
<tr>
<td>Bias Voltage</td>
<td>0mV</td>
</tr>
<tr>
<td>Load Resistance</td>
<td>10Ω (recommended)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>&lt;2% Output value</td>
</tr>
<tr>
<td>Stability (month)</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Output Linearity</td>
<td>Linear</td>
</tr>
<tr>
<td>Zero drift (-20°C~40°C)</td>
<td>≤0.2ppm</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-20°C~50°C</td>
</tr>
<tr>
<td>Humidity range</td>
<td>15%~90%RH No condensation</td>
</tr>
<tr>
<td>Pressure range</td>
<td>standard atmospheric pressure</td>
</tr>
<tr>
<td>Lifespan</td>
<td>2 years</td>
</tr>
</tbody>
</table>

![Sensor Structure](image)
Description of sensor characters

Fig 2. Responce and Resume

Fig 3. Linearity

Fig 4. Sensor output at different temperature

Fig 5. Zero sensor output at different temperature

Basic Circuit
Cross Interference
ME4-Cl₂ sensor also can respond to other gases besides target gas Cl₂. Following data are the response characteristics of the sensor to interferential gases at certain concentration for your reference.

<table>
<thead>
<tr>
<th>Interferential Gas</th>
<th>Concentration/ppm</th>
<th>ME4-Cl₂/ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₂S</td>
<td>15</td>
<td>&lt;3</td>
</tr>
<tr>
<td>CO</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td>NO</td>
<td>35</td>
<td>0</td>
</tr>
<tr>
<td>SO₂</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>HCN</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>H₂</td>
<td>400</td>
<td>0.1</td>
</tr>
<tr>
<td>C₂H₄</td>
<td>400</td>
<td>0.1</td>
</tr>
<tr>
<td>HCl</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>CO₂</td>
<td>5%</td>
<td>0</td>
</tr>
<tr>
<td>NH₃</td>
<td>20</td>
<td>0.1</td>
</tr>
</tbody>
</table>

8. Application Notes
- Sensor shall Avoid organic solvent, coatings, medicine, oil and high concentration gases;
- All ME Sensors shall not be encapsulated completely by resin materials, and shall not immerse in pure oxygen environment, otherwise, it will damage the function of sensor;
- All ME sensors shall not be applied in corrosive gas environment, or the sensor will be damaged;
- Please test the sensitivity of gas sensors in clean atmosphere;
Sensors Shall be avoided to face the gas, which flow directly from front side;

To avoid to bend and break of pins;

Blowhole of the sensor should not be blocked and polluted, which will cause the sensitivity decrease;

Excessive impact or vibration should be avoided;

Do not use the sensor when the shell is damaged;

It takes some time for the sensor to return to normal state After applied in high concentration gas;

Do not take apart the sensor, otherwise electrolyte leakage can cause sensor damage;

Working electrode and reference electrode of the sensor shall be in short circuit when stored.;

To preheat over 48hs before using and soldering forbidden;

Note: To keep continual product development, we reserve right to change design features without prior notice.