Electrochemical Detector

Superb electrochemical detection technology - Optimum for high selectivity analysis at high sensitivity!

This detector is ideal for analyzing substances having electrochemical activity (neurotransmitters, etc.).

Flexible System Configuration

Various analytical systems can be constructed by combining various components.

Special Cell Developed for Semi-microcolumn

A uniquely developed cell enabled high-sensitivity analysis.

Remarkable Sensitivity Enhancement

Comparison of sensitivity with electrochemical detection

Instrument: NANO SPACE SI-2
Mobile phase: Acetonitrile - 0.068 vol% potassium dehydrogenphosphate, 0.08 vol% phosphoric acid, 2 ppm EDTA-2Na = 11/89 (v/v)
Flow rate: (A) 50 μL/min
(B) 1.0 ml/min
Temperature: 40°C
Detection: ECD 0X 850 mV (Ag/AgCl); ECD 0X 850 mV (Ag/AgCl)
Injection volume: 1.0 μL
Sample: Homovanillic acid (8.8 pmol)
Comparison of sensitivity between electrochemical detector and UV-VIS detector

![Graph comparing sensitivity of UV-VIS and electrochemical detectors](image)

Comparison of sensitivity among electrochemical detector, UV-VIS detector, and fluorescence detector

<table>
<thead>
<tr>
<th>Detector</th>
<th>Detection limit (μg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV (280 nm)</td>
<td>1500</td>
</tr>
<tr>
<td>Fluorescence (295/355 nm)</td>
<td>20</td>
</tr>
<tr>
<td>ECD (+750 mV)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Sample: Folic acid

Specially Designed Glassy-carbon Electrode

Significant improvements in durability, reaction efficiency and baseline stabilization were achieved by using specially structured high-purity glassy-carbon as a working electrode. Several other types of working electrodes are available (platinum, silver, and gold).

Low-noise and Rapid Baseline Stabilization

The unique design of the electrode assembly (working electrode, reference electrode, and counter electrode) with a current limiting circuit allows the rapid stabilization of baseline with low noise.

Double-layered Reference Electrode (Patent Pending)

The detector has a double-layer structure reference electrode so that (1) will not be placed in direct contact with the mobile phase. Therefore, an organic solvent can be used for the mobile phase simply by changing the outer cylinder liquid to NaClO₄ solution.
Easy Maintenance
The electrode structure allows quick detachment/attachment and disassembling/assembling for efficient rinsing and maintenance.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Product No.</td>
<td>3005</td>
</tr>
<tr>
<td>Product Name</td>
<td>Electrochemical detector</td>
</tr>
<tr>
<td>System</td>
<td>Triple-electrode potentiostat</td>
</tr>
<tr>
<td>Applied Voltage Setting</td>
<td>Digital setting of ±1990 mV in 10 mV steps</td>
</tr>
<tr>
<td>Compensating Current</td>
<td>-30 to +5000 nA</td>
</tr>
<tr>
<td>Working Electrode</td>
<td>Glassy carbon (Option: Platinum, gold, and silver)</td>
</tr>
<tr>
<td>Reference Electrode</td>
<td>Silver/Silver chloride</td>
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<tr>
<td>Counter Electrode</td>
<td>SUS316</td>
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<tr>
<td>Electrode Chamber Temperature</td>
<td>30°C</td>
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<tr>
<td>Cell Volume</td>
<td>3.5 µL</td>
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<tr>
<td>Measuring Range</td>
<td>0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA</td>
</tr>
<tr>
<td>Measuring Sensitivity</td>
<td>x0.1, x1, x10</td>
</tr>
<tr>
<td>External I/O Signal</td>
<td>For recorder (10 mV)</td>
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<tr>
<td></td>
<td>For integrator (2 mV/nA)</td>
</tr>
<tr>
<td></td>
<td>Error, integrator start, and auto-zero</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>10 to 28°C</td>
</tr>
<tr>
<td>Power</td>
<td>AC 100 V ±10%, 50/60 Hz, 50 W</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>Dimensions</td>
<td>120(W) x 230(H) x 479(D) mm</td>
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<tr>
<td>Weight</td>
<td>About 10 kg</td>
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