200mm f.l. Vacuum Monochromator

The 234/302 is a 200 mm focal length, f/4.5, aberration corrected vacuum monochromator. It has 0.1 nm fwhm spectral resolution with 1200 g/mm grating. Its precision slits are micrometer adjustable from 0.01 to 3 mm. The 234/302 features a wavelength counter, and manually operable sine drive providing years of accurate and reproducible wavelength positioning. The scan controller provides computer/software control. The high performance masterpiece diffraction gratings provide excellent performance from the extreme ultraviolet to the UV.

Use the 234/302 monochromator for any deep UV or vacuum ultraviolet application. The compact housing is easily adapted to most experiments. Microchannel plate and CCD adapters are available. Combined with one of our vacuum UV light sources it also makes a great UV tunable source.

Aberration Corrected | Gratings rotate about apex | Precision Drive | Optional Dual Ports, Turret

Optical Design: Aberration Corrected Seya-Namioka
Angle of Incidence: 32 degrees
Focal Length: 200 mm
f/no.: 4.5
Wavelength Range: refer to grating of interest for range
Wavelength Accuracy: +/- 0.10 nm (with 1200 g/mm grating)
Wavelength Reproducibility: +/- 0.05 nm (with 1200 g/mm grating)
Grating Size: 40 x 45 mm (single kinematic grating holder, turret optional)
Slits: Continuously variable micrometer actuated width 0.01 to 3 mm. Settable height.
Vacuum: High vacuum 10E-6 torr standard, UHV optional
Focal Plane: 25 mm microchannel plate or direct detection CCD

Ordering Information
Part Number: 8183-0302-0 = Model 234/302 Aberration Corrected Vacuum Monochromator, 200mm, f/4.5, adjustable entrance and exit slits (requires scan controller and software)
Performance with different gratings

<table>
<thead>
<tr>
<th>Grating Groove Density (g/mm)</th>
<th>2400</th>
<th>1200</th>
<th>600</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Resolution (nm, FWHM) (^1)</td>
<td>0.05</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Dispersion (nm/mm)</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Wavelength Range up to (nm)</td>
<td>225</td>
<td>550</td>
<td>1100</td>
<td>2200</td>
</tr>
<tr>
<td>Holographic Optimization: (nm) (^2)</td>
<td>80</td>
<td>140</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>140</td>
<td>300</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

1. Tested in scanning mode at 184.9 or 312.6 nanometers with 10 micron wide slits at slowest aperture ratio
2. Gratings work best from 2/3 blaze wavelength to 3/2 blaze wavelength

Grating selection
234/302 Sample Spectrum from 40 to 200 nanometers and measures the hollow cathode light source spectrum with a low resolution scan and Si diode detector
Instrument Configurations

Scanning monochromator

Spectrograph

Multi-port

Optional dual-grating turret and ultra-high vacuum (UHV) configuration not shown

System Example 1 – Extreme UV
Tunable Light Source 30 to 160 nm

System Example 2 – Deep & VUV
Tunable Light Source 120 to 220 nm

System Example 3 – 120 to 220nm Tunable Source with UV/Vis to IR Emission