H30-UVL
Monograph for far and extreme ultraviolet

A Monochromator and a Spectrograph
A monograph to explore the 50-300nm spectral range

The H30-UVL is especially designed for analyzing from high EUV to UV range in high vacuum environment and can be used as a monochromator (slit-slit) or spectrograph (slit-CCD).

The H30-UVL is built around a single toroidal aberration corrected grating using the holographic Variable Line Spacing, VLS technology. It has been calculated to reduce astigmatism not only on its optical axis but over a large exit plane in all directions (25 x 10 mm corrected plane) making it ideal for one inch arrays. Its single grating layout has the other advantage to reduce the number of optics in the instrument to the minimum, increasing its throughput in EUV and FUV regions.

### Features
- Single Toroidal Grating design
- Low astigmatism level
- Corrected imaging plane
- MgF₂ coating UV optimized
- Interchangeable exit port
- Automated drive
- Built-in USB2 interfaces
- High Vacuum compatible

### Benefits
- Optimized the throughput
- High S/N ratio measurement
- Flat field monograph
- Better efficiency in FUV range
- Choice of exit slit or CCD port
- Fast and easy to operate
- No additional controller and easy computer control
- A few 10⁻⁶ mbar – optional a few 10⁻⁹ mbar (UHV)

### Applications
- Tunable light source
- FUV Reflectometry/Absorption
- Plasma Physics Study
- High Harmonic Generation

### Compact
- Controller less
- Fast drive
- Versatile
- USB2
- High EUV-UV
- True flat field

### Variation of the dispersion with wavelengths

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Dispersion (nm/mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>2.3</td>
</tr>
<tr>
<td>175</td>
<td>2.5</td>
</tr>
<tr>
<td>300</td>
<td>2.6</td>
</tr>
</tbody>
</table>

### Spectral range analyzed with 1 inch CCD in Spectrograph Mode

<table>
<thead>
<tr>
<th>Central wavelength (nm)</th>
<th>Spectral range on the CCD (nm)</th>
<th>Central wavelength (nm)</th>
<th>Spectral range on the CCD (eV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>21 - 80</td>
<td>50</td>
<td>15 - 60</td>
</tr>
<tr>
<td>150</td>
<td>120 - 180</td>
<td>150</td>
<td>7 - 10</td>
</tr>
<tr>
<td>300</td>
<td>270 - 330</td>
<td>300</td>
<td>4 - 5</td>
</tr>
</tbody>
</table>
Toroidal rotating grating providing a flat field spectrum

A corrected grating for a compact and simple design

Thanks to the corrected grating that provides a true flat field spectrum whatever the selected wavelength, the exit port can be either a slit or a CCD port.

![Image](image_url)

Exit port easily interchangeable by user from slit to CCD port

Theoretical absolute efficiency of H30-UVL with a Pt and AlMgF$_2$ coating

He spectrum recorded with a H30-UVL in spectrograph mode. VLS gratings make proper corrections to have the best image at the exit of instruments.

Standard Configuration

<table>
<thead>
<tr>
<th>Optical design</th>
<th>Toroidal VLS Grating (single optic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focal length</td>
<td>274 mm</td>
</tr>
<tr>
<td>Aperture</td>
<td>f/6</td>
</tr>
<tr>
<td>Grating density</td>
<td>1200 gr/mm</td>
</tr>
<tr>
<td>Grating type</td>
<td>Replica (Master in option)</td>
</tr>
<tr>
<td>Optic coating</td>
<td>AlMgF$_2$ optimized at 121 nm or Pt</td>
</tr>
<tr>
<td>Deviation angle</td>
<td>70°</td>
</tr>
<tr>
<td>Dispersion</td>
<td>2.3 nm/mm at 50 nm</td>
</tr>
<tr>
<td>Drive</td>
<td>Fast worm drive</td>
</tr>
<tr>
<td>Resolution</td>
<td>Better than 0.2nm (*)</td>
</tr>
<tr>
<td>Vacuum</td>
<td>A few 10$^{-6}$ mbar</td>
</tr>
</tbody>
</table>

Pumping flange         | DN63 CF                               |
Entrance port          | Micrometric slits (10 µm to 2 mm)    |
Exit port              | Micrometric slits (10 µm to 2 mm) or adjustable CCD port |
Entrance flange        | DN40 KF                               |
Exit flange            | DN40 KF for slit version, DN100CF for CCD version |
Software               | HORIBA Scientific software            |
PC Interface           | Built-in USB2 – No additional controller |

Options

- Exit port can be CCD port. Easily interchangeable by user
- Removable entrance arm

Accessories

- UV Light Sources
- Single channel detection
- CCD detectors
- Laser kit for easy alignment
- HM mirror chambers
- Sample compartment

* using 10 micron slit and 2 mm slit height at 121 nm in monochromator mode
HORIBA Scientific, Your partner in VUV Spectroscopy

Contact Us
France: Tel: +33 (0)1 69 74 72 00
USA: Tel: +1 732 494 8660
Japan: Tel: +81-(75)313 8123
Germany: Tel: +49 (0)6251 8475-0
UK: Tel: +44 (0)20 8204 8142
Italy: Tel: +39 2 5760 3050
China: Tel: +86 (0)21 6289 6060
Brazil: Tel: +55 (0)11 5545 1500
Other: Tel: +33 (0)1 69 74 72 00

www.horiba.com/scientific
info.sci@horiba.com

Follow Us

Explore the future
Automotive Test Systems | Process & Environmental | Medical | Semiconductor | Scientific