



# VM100 EUV Spectrometer

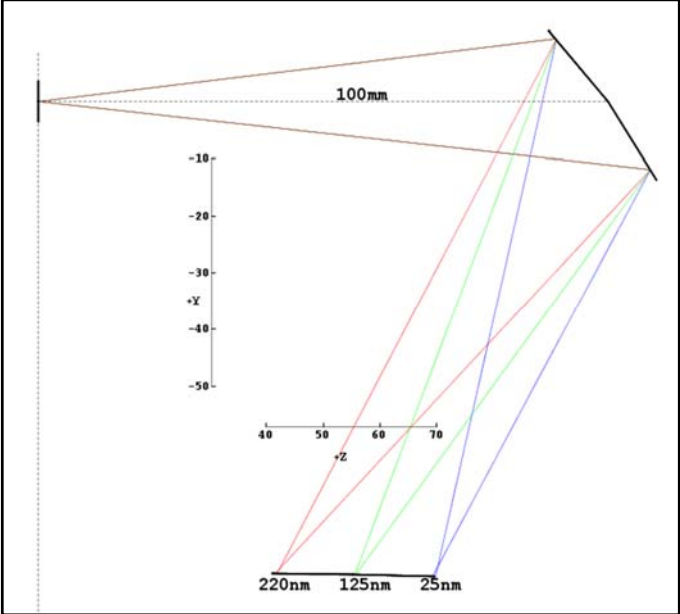
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## Brochure

REV 1.0  
5/11/2020

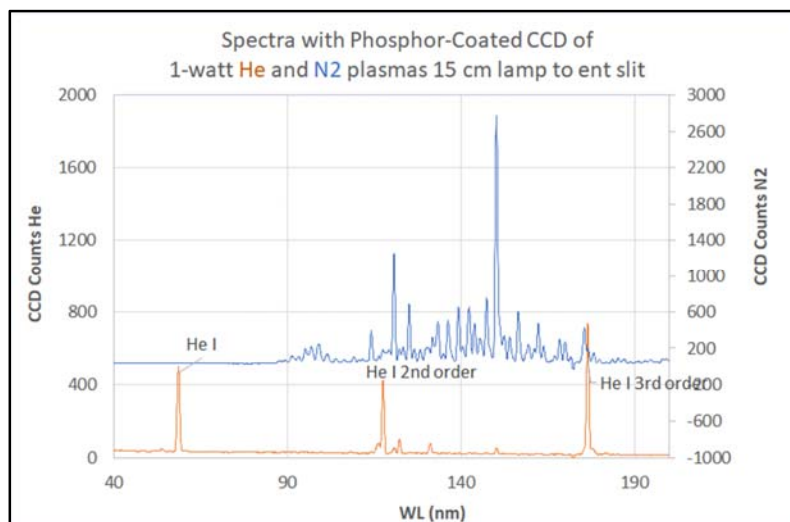
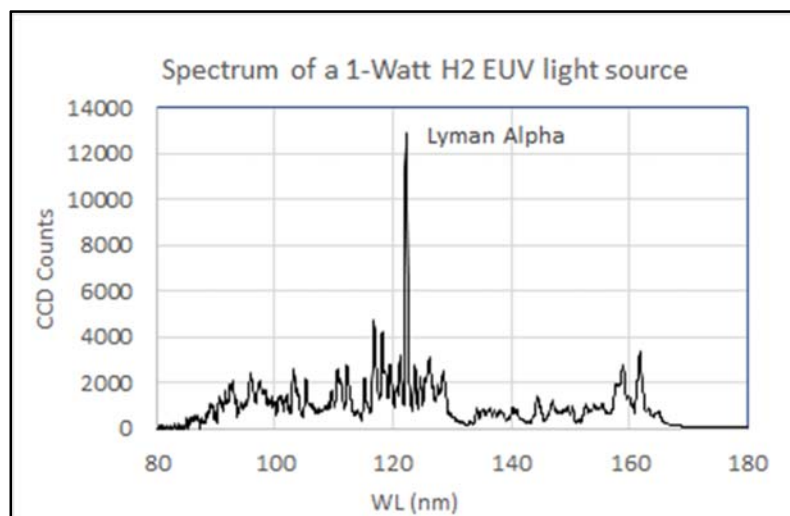


Overview

VM100	Description
	<p><b>VM100 EUV Compact Spectrometer</b></p> <p>The VM100 is the successor to the Resonance VM92 spectrograph used by researchers all over the world. Its single-grating design provides high EUV efficiency while the 100 mm focal length offers an excellent balance between size and functionality.</p> <p>The compact 2-kg system can be coupled directly to a vacuum chamber through a 2.75" Conflat™ flange. The standard configuration is a CCD spectrometer with a motorized wavelength drive to allow use from 25 to 300 nm.</p> <p>Like the VM92, the VM100 has accessories to outfit it with an exit slit for use as a monochromator.</p>  <p>The diagram illustrates the optical layout of the VM100 EUV Compact Spectrometer. It shows a vertical slit on the left side. A horizontal dashed line indicates a focal length of 100mm. The vertical axis is labeled +Y and ranges from -10 to -50. The horizontal axis is labeled +Z and ranges from 40 to 70. Three sets of lines represent different wavelength ranges: 220nm (red), 125nm (green), and 25nm (blue). The lines converge at a point on the right side, representing the detector or grating.</p>

## Features

- Concave Holographic Grating Spectrograph Monochromator with UHV interface
- Vacuum Compatible to  $<10^{-7}$  torr
- Includes CCD for EUV to NIR coverage
- Manually adjustable slits using micrometer (while under vacuum)
- EUV to NIR range (depending on grating)
- Includes Grating drive and Software for use in over wide spectral range
- One frame coverage from 190 to 230 nm with standard EUV to NIR CCD
- Frames can be stitched for wider range coverage
- Software and SKD included
- Accessories include exit slits, PMT and diode detectors and light sources



## Optical/Electrical/General

Specification	Minimum	Typical/Median	Maximum	Units
Focal Length (input)		100		mm
Focal Length (output)		94		mm
Wavelength Range depends on grating	25	-	1100	nm
Wavelength Accuracy	-	± 0.15	-	nm
CCD QE 25 to 400 nm	8	18	20	%
CCD QE for 400 to 930 nm	15		42	%
CCD QE for 930 to 1050	3		15	%
Best Spectral Resolution 1200 grating first order		0.3		nm
Manually adjustable vacuum slit(s)	10	100	6000	microns
Connection	Two USB 2.0 cables for data, power and servo control			
Pressure	<1 x 10 <sup>-7</sup>	1 x 10 <sup>-6</sup>	na	mBar
Detector	2048 pixel linear array with EUV/UV phosphor			
F #		3.3		
Grating	1199.99	1200	1200.001	grooves/mm
Grating coatings	Pt, Au, Al/MgF2			

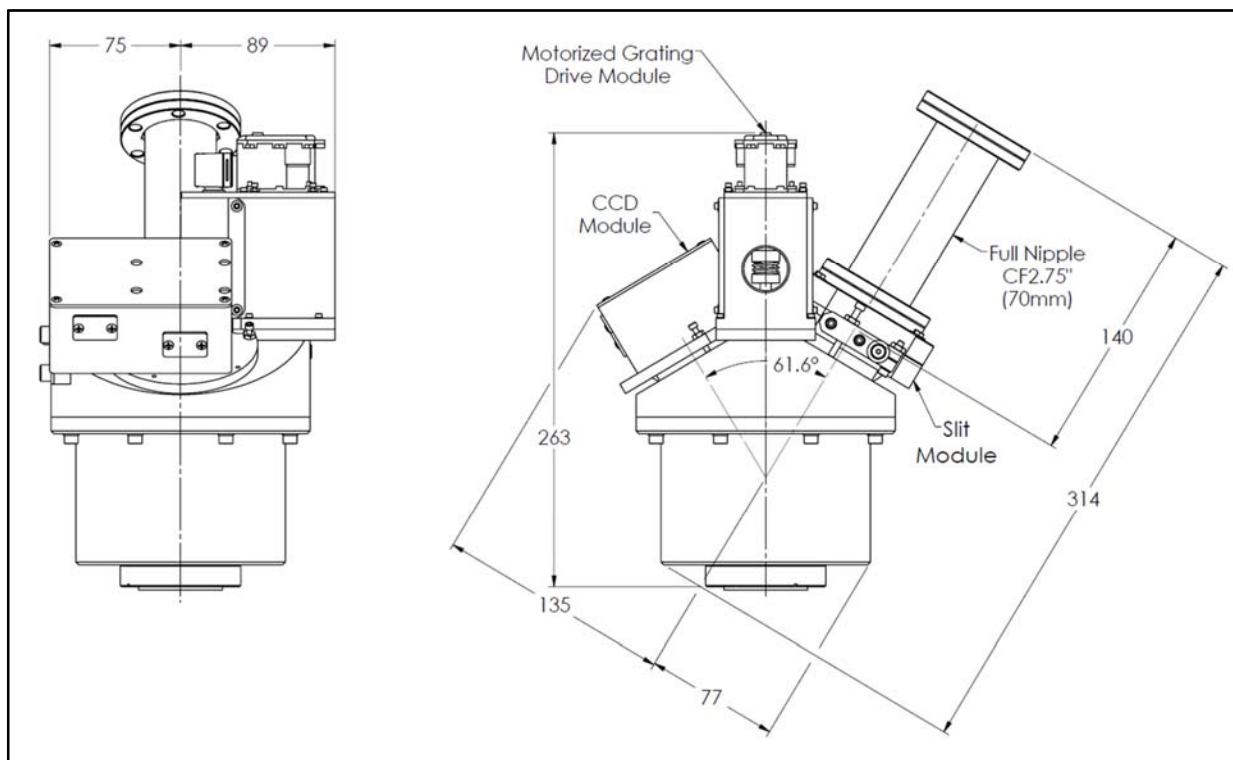
### Spectral Characteristics

Spectral range	gtg angle (deg.)	short wl (nm)	long wl (nm)	RLD (nm/mm)
EUV VUV	35.9	25	220	7.01
VUV UV	39.1	100	300	7.20
UV VIS	43.23	200	405	7.40
VIS	51.8	400	610	7.70
VIS NIR	60.8	600	815	7.89

NIR	70.5	800	1010	7.74
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**Mechanical**

Max. Dimensions	Value
Height	26.3 cm.
Height (with UHV adaptor)	30 cm.
Width Spectrograph	21.2 cm.
Depth Spectrograph	16.4 cm.
Tolerances	±0.2 cm.
Materials	
Optical Bench	Aluminum/6061 T6
Vacuum Adapters	304 SS, OFE Cu gaskets
Mass	
Spectrograph	1700 Gm.
Vacuum Interface	550 Gm.



## **Packing List**

- VM100 EUV/VUV/UV Spectrograph (as shown in figure 3)
  - Removable UHV nibble 2.75" Conflat flange (delivered on spectrograph)
  - 1200 Grating (delivered in spectrograph)
  - CCD Module in hermetic housing (delivered on spectrograph)
  - Slit Module (delivered on spectrograph)
  - Digitally controlled wavelength drive (delivered on spectrograph)
- VM100 Electronic interface for controlling wavelength Drive
- Disk with Resonance Acquisition Software and Drivers Suite
- Cables and spare gaskets and hardware
- Manual

Resonance Ltd. stands behind every product we sell. We welcome feedback and encourage any of our customers to contact us with questions, or concerns. You may contact us through email, our website, telephone, or fax!

Resonance Ltd.

143 Ferndale Drive North

Barrie, ON

L4N 9V9

Tel: 705-733-3633

Fax: 705-733-1388

Email: [res@resonance.on.ca](mailto:res@resonance.on.ca)

Web: [www.resonance.on.ca](http://www.resonance.on.ca)