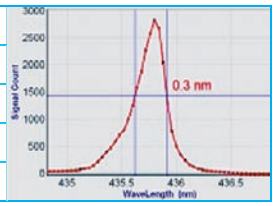
Monochromators

Monochromator/Spectrograph Omni-λ 150

Omni-λ150 monochromator

- Focal length: 150 mm
- Fully automated
- USB 2.0 interface
- 180 nm – 23 µm (grating dependent)
- Lab View VI's and Linux driver

Mercury light source	435.83 nm
FWHM	0.3 nm
Peak wavelength	435.80 nm
Grating	1200 l/mm
Blaze	@300 nm



The Omni-λ150 is a high quality direct drive scanning monochromator system that is designed with an interchangeable dual grating turret. The short focal length makes it ideal for applications that generally do not need high spectral resolution such as: illuminators, light filtration, low resolution spectral analysis, etc. The compact rugged design ensures high performance operation with low stray light and excellent light gathering capability. OMNICONTROL software permits easy to use computer control through USB 2.0 interface. The Lab View VI's make it ideal for integration into a wide range of spectroscopy systems for e.g. absorption transmission or fluorescence measurements, or as a monochromatic illuminator system when combined with one of our light sources.

Optical configuration

The Omni-λ150 uses an asymmetrical in-plane Czerny-Turner configuration. The F-number is f/4.2.
The resolution with a 1200 l/mm grating is 0.4 nm@500 nm. Entrance and exit slits are on the same optical axis which makes it easy to align on an optical bench or rail. The Omni-λ150 can also be operated as a spectrograph. Mounting adapters for most commercial cameras are available.

Motorized wavelength drive

The Omni-λ150 uses a stepping motor drive with a repeatability of 0.1 nm to change wavelength and to switch gratings. This direct driving mechanism keeps complexity and costs to a minimum. With the included software OMNICONTROL the system is able to perform automated scans with grating and filter change. The min. step size is 0.01 nm.

Instrument control and software

The Omni-λ150 is connected to the computer via an USB 2.0 connection. OMNICONTROL is a standalone program for users who only need to command the monochromator without integrating it with other instruments. For all others we supply 32 bit Lab View VI's and basic LINUX interfaces incl. source code. Furthermore a list of all device commands is in the manual for individual programming needs.

Specifications	
Focal length	150 mm
Aperture ratio	f/4.2
Resolution@500 nm	0.4 nm
Dispersion	5.4 nm/mm
Grating mount:	dual grating turret, interchangeable
Grating size:	32 mm x 32 mm
Accuracy (wavelength)	0.25 nm
Repeatability	0.1 nm
Drive step size:	0.01 nm
Focal plane size	25 mm (w) x 10 mm (h)
Standard slits:	0.01 - 3 mm, continuously adjustable
Slit height	4 mm
Optical axis height	134 mm ~164 mm
Size	190 mm (l) x 200 mm (w) x 158 mm (h)
Weight	8 kg
All specifications are obtainable with a 1200 l/mm grating and 10 µm slits at 546.1 nm.	

Monochromators

Monochromator/Spectrograph Omni-λ 150

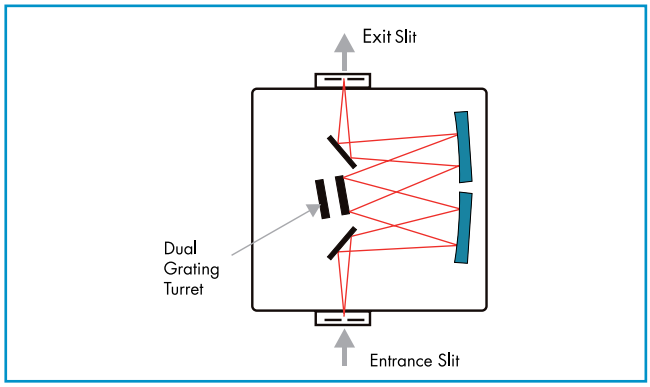
Slit assemblies

The slit assembly uses a precision micrometer drive to adjust the width. It is continuously adjustable from 10 µm to 3 mm at a slit height of 4 mm. All slits have a 35 mm series male flange which allows convenient interfacing to a wide range of accessories. The optional multiple fixed slit assembly has 7 fixed slit positions ranging from 0.5 to 6 mm in width. Fixed slits are the best choice for reproducible bandwidth. The table above shows typical bandwidth for a 1200 l/mm grating.

Slitwidth µm	Bandwidth nm
10	0.5
25	0.5
50	0.5
150	1
350	2
750	4
1000	5
2000	10
3000	15

Optional motorized filter wheel

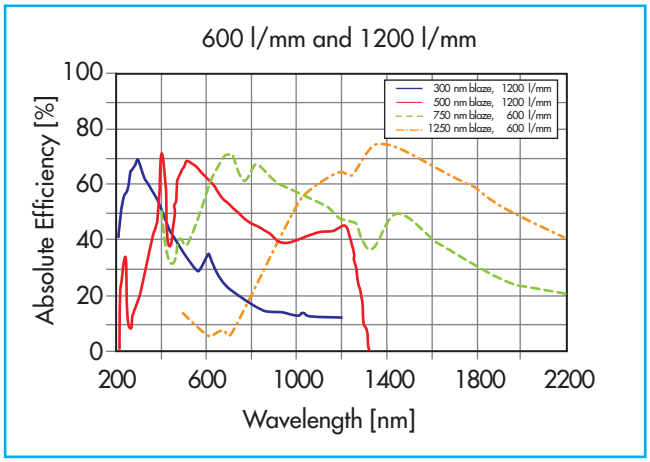
A 6 position filter wheel is offered to hold order sorting and/or neutral density filters at the input of the Omni-λ150. The filter wheel is controlled by the OMNICONTROL software. It is equipped with 5 Schott glass filters with 50% T cut-on wavelength at 350, 550, 650, 800, 1100 nm.



Optical configuration Omni-λ150 monochromator

By the way

If your detector is sensitive to shorter wavelength than those diffracted in the first order you'll need to block them before they hit the detector. See a list of order sorting filters under www.lot-oriel.com/filter or use our computer controlled, motorized filter wheel MSZ 3122.



Typical efficiency curves for 600 and 1200 line gratings, different blaze

Ordering information Monochromator and Spectrograph	
MSH 3101	Omni-λ150 **Monochromator/Spectrograph**, USB 2.0 interface, 180° configuration, OMNICONTROL software packet, 32 bit Lab View VI's and Linux source code
MSZ 3112	Variable slit assembly, 10 µm – 3 mm, micrometer driven
MSZ 3114	Fixed slit assembly, 7 fixed slits: 0.5, 1, 2, 3, 4, 5, 6 mm manually changable
MSZ 3122	Motorized filter wheel with 5 Schott glass filters with 50% T cut-on wavelength at 350, 550, 650, 800, 1100 nm.

Ordering information Gratings	Line Spacing (l/mm)	Blaze Wavelength	Type
MSG32-1800-H	1800		Holographic
MSG32-1200-300	1200	300	Ruled
MSG32-1200-500	1200	500	Ruled
MSG32-600-1000	600	1000	Ruled
MSG32-600-1250	600	1250	Ruled
MSG32-300-1250	300	1250	Ruled
Other gratings on request			