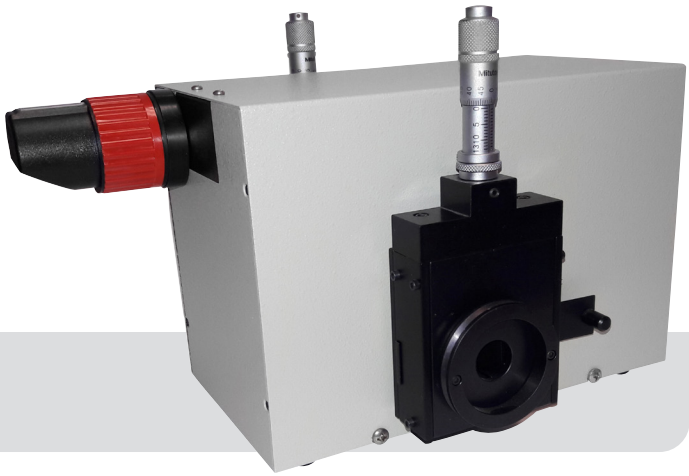
77250B

1/8 m Hand Operated Monochromator

mks | Newport™

For general-purpose laboratory work or academic applications, the Oriel 77250B Series 1/8 m Hand Operated Monochromator is a smart and economical choice. This simple, manually operated 1/8 m instrument has good resolution, low stray light and is very versatile. A large family of slits and gratings are available to meet any application's resolution, throughput, and wavelength requirements.

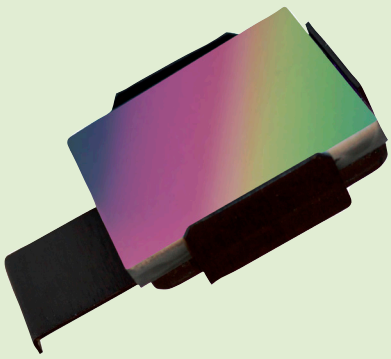


Features

- Economical, fully assembled, pre-aligned monochromator
- Ebert-Fastie design eliminates stray light
- Manually operated smooth adjust knob sets wavelength output accurate to 1 nm
- Integrated with a four-digit counter, with 0.1 nm resolution adjustment
- Fixed slit and micrometer adjustable slit models available
- Selectable wavelength ranges available with interchangeable gratings

Interchangeable Diffraction Gratings

Each 30 x 30 mm diffraction grating comes pre-aligned in its own frame, allowing it precisely fit inside the instrument. The frame has a tab that allows the grating to be inserted or replaced inside the monochromator without touching its surface. Each grating comes with a protective cover and is labeled with the model number, making interchangeability and storage simple. The available gratings are listed on our website and need to be purchased separately.



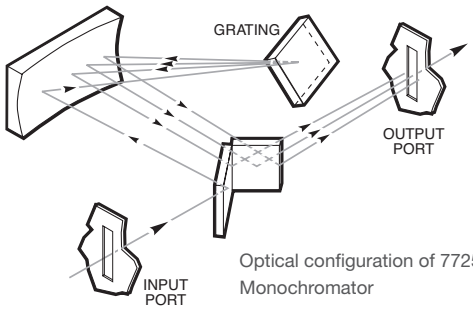
Diffraction grating with its bonded holder for ease of handling (sold separately)

Delivered Fully Assembled and Aligned

The 77250B is factory assembled and pre-aligned so it is ready for immediate use. Micrometer adjustable slits or fixed slit holders are installed at the input and output ports. Each diffraction grating is carefully aligned and bonded to its holder. Both the grating holder and the instrument are designed with precise mechanical tolerances, allowing gratings to be easily installed and exchanged at any time.

Optical Design

The optical configuration of the 77250B results in high throughput and very low levels of stray light. The Ebert-Fastie design features two slits in line with each other, with an out of plane grating. The slit locations allow the complete optical system to be easily mounted to a bench or rail. The grating orientation eliminates re-entrant spectra.



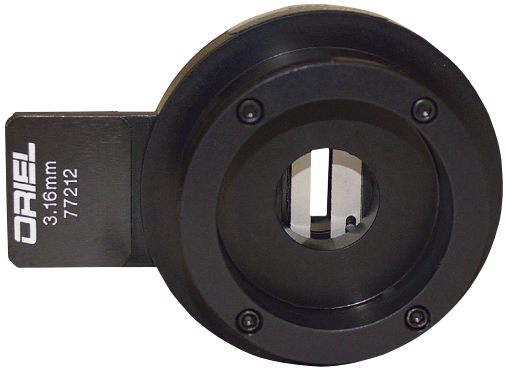
Optical configuration of 77250B 1/8 m Monochromator

Manual Wavelength Drive and Readout

The 77250B uses a smooth knob adjustment to position the grating. A four-digit counter displays the wavelength in nanometers when using a 1200 lines/mm grating. For gratings with different line densities, the wavelength shown on the display is multiplied by the appropriate scaling factor. The readout is set during calibration so that the wavelength indicated is correct to within 1 nm over the full range of a 1200 lines/mm grating. For greater accuracy, the readout can be reset within any restricted spectral region.

Fixed Slit Option

Fixed slits should be used for the utmost accuracy and repeatability, especially at high resolution. The slit width is one of the factors determining the resolution and throughput of the instrument, with a narrow slit providing higher resolution and lower throughput. Fixed slits are the best option when only a few slit sizes are required, as they are less expensive. The fixed slits slide into the pre-installed slit holders at the input and output ports. The width and height cannot be adjusted, but may be individually replaced with other slit sizes. Individual fixed slits are required to use the instrument and ordered separately to allow customized choices based on the needs of the application. Order two identical fixed slits for the 77250B monochromator.



A fixed slit (sold separately) is shown installed into the fixed slit holder 77294

Micrometer Adjustable Slit Option

Micrometer adjustable slits offer flexibility and high throughput. This type of slit is designed primarily for versatility and convenience in changing resolution and throughput. Micrometer adjustable slits do not provide the same level of accuracy and repeatability of fixed slits. A micrometer adjustable slit assembly is continuously variable from fully closed to 3 mm width. The narrowest practically achievable width is 4 µm. A height adjustment slide allows variation in the height from 2 to 12 mm. Two micrometer slit assemblies are pre-installed at the input and output ports.

Micrometer driven slit assembly 74001

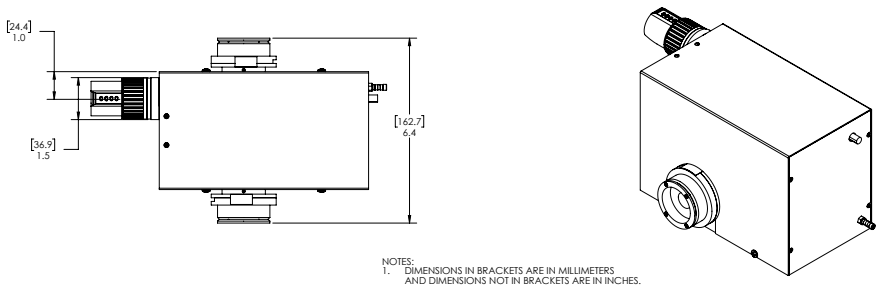
Monochromator Mounting

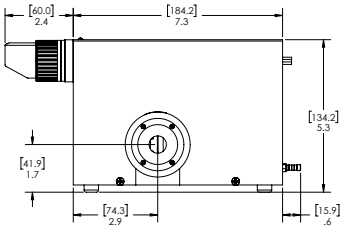
The optional 77387 mounting plate can be used to secure a 77250B monochromator to an imperial optical table. The ability to mount the monochromator simplifies setup and alignment of the optical system. The mounting plate also helps ensure consistent results over time, as the monochromator cannot be accidentally moved out of position. The plate adds 0.25 inch [6.35 mm] to the optical height. Threaded holes on the mounting surface of the monochromator also allow the instrument to be optical rod mounted, if desired.

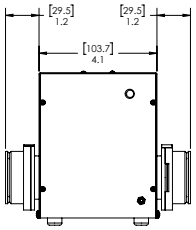
PARAMETER	77250B Specification
Focal Length	125 mm
F/#	F/3.7
Wavelength Selection Method	Manual
Spectral Range	200 nm to 23 µm, grating dependent
Spectral Bandwidth	Grating and slit width dependent
Wavelength Accuracy	1 nm[1]
Step Counter Resolution	0.1 nm[1]
Stray Light	0.03%
Input Port	1
Output Ports	1
TracQ Basic Software Compatible	No
74009 Hand Controller Compatible	No
Power Requirements	N/A
Weight	4 lbs. (1.8 kg)
Computer Interface	N/A
Grating Size	30 mm x 30 mm
Optical Axis Height	2.0 inch (50.8mm)
Number of gratings supported	1
Flange Series Size	1.5 inch

1) 1200 L/mm grating

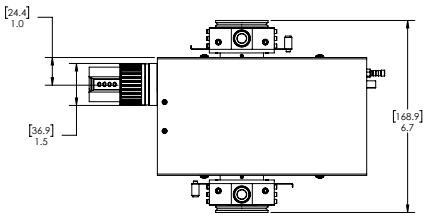
Dimensional Drawing

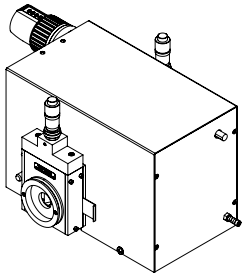






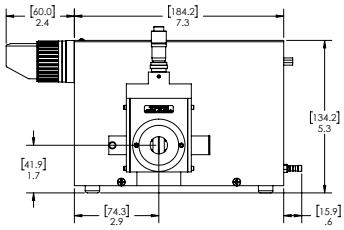
77250B-FH

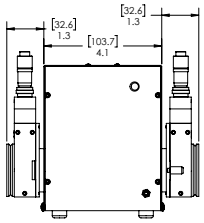




77250B-MC

NOTES:
1. DIMENSIONS IN BRACKETS ARE IN MILLIMETERS AND DIMENSIONS NOT IN BRACKETS ARE IN INCHES.





Order Table

Model	Description
77250B-FH	1/8 m Monochromator, Hand Operated, Fixed Slit Assembly
77250B-MC	1/8 m Monochromator, Hand Operated, Micrometer Driven Slit Assembly

www.newport.com

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