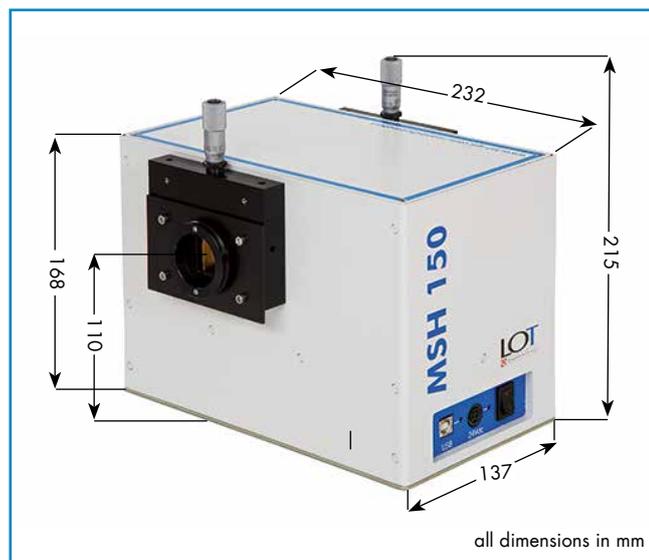


# Monochromators

## Monochromator MSH-150 with variable slit



Layout MSH-150

The MSH-150 monochromator system is a high performance and rugged platform designed for unparalleled wavelength accuracy at all grating angles, very fast wavelength acquisition and zero backlash. It is built in a single casting, providing the highest rigidity and robustness.

Flexible grating options make this monochromator the ideal general purpose unit that covers a wide range of application requirements from UV to IR.

### Optical layout

The optical Czerny-Turner layout has been developed to minimize scattered light and maximize throughput. Effective internal baffling reduces general scatter while the novel mirror arrangement avoids rediffracted light which is often a problem at shorter wavelengths.

Up to two gratings are mounted on a turret which can be rotated through 360°, allowing the software selection of grating type and position.

### Motorized wavelength drive

The MSH-150 control grating position uses precision gears and a microprocessor-controlled microstepping drive. This enables wavelength acquisition speeds up to 1000 nm/s. The software control allows automated scans with grating and filter change.

- Focal length: 150 mm
- Fully automated
- USB 2.0 interface
- 190 nm - 24 μm (grating dependent)
- Control software
- Software development kit with code examples  
C, C++, Delphi, VBA and LabView

### Motorized filter wheel

If a detector is sensitive to shorter wavelengths than those diffracted in the first order you'll need to block them before they hit the detector. Also, using the system as monochromatic light source with broadband light at the entrance requires the use of long pass filters. For handling convenience, the MSH-150 can be equipped with a motorized 6-position filter wheel holding standard 25 mm diameter order sorting filters. Its position inside the single casting allows full access to the external slit assemblies for mounting detectors, fibers or other accessories. Position 6 holds a blind plate for dark current measurements.

Find a list of available order sorting filters on [www.lot-qd.com/monochromators](http://www.lot-qd.com/monochromators).

### Instrument control and software

The USB interface uses Windows native drivers providing plug and play connectivity to all Windows computers with either 32 or 64 bit OS systems. The software offers a user-friendly control of all relevant parameters like center wavelength, grating selection, calibration values, etc. as well as optional slit width, filter position and others.

For those who need to integrate the monochromator in larger setups the software development kit (SDK) features code examples for C, C++, Delphi, VBA and LabView for individual programming needs.

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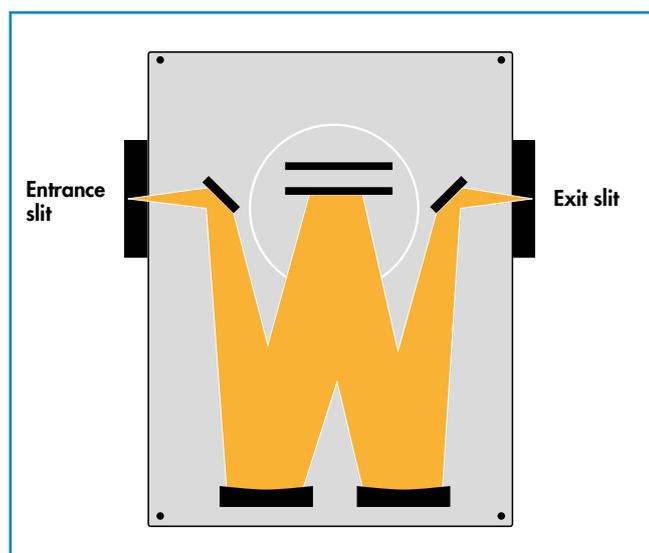


Specifications	
Configuration	Czerny-Turner
Slits	10 $\mu\text{m}$ to 10 mm variable, manual or motorized
Slit height	20 mm
Number of gratings	1 or 2
Grating size	30 mm x 30 mm
Aperture ratio	f/4.6
Resolution	0.3 nm at reduced slit height, 0.5 nm with full slit height of 20 mm, both measured with 1200 l/mm grating
Wavelength acquisition speed	1000 nm/s
Wavelength accuracy	$\pm 0.3$ nm over full range of 1200 l/mm grating
Wavelength reproducibility	$\pm 0.05$ nm (1200 l/mm)
Weight	6 kg

### Slit assemblies

Slit assemblies use a precision micrometer drive to adjust the slit width. They are continuously adjustable from 10  $\mu\text{m}$  to 10 mm at a height of 20 mm. An optional computer-controlled motorized version is available for up to two ports.

All slits are equipped with the LOT 35 mm flange system which allows convenient interfacing to our wide range of accessories. The grating table shows theoretical bandwidths for a 1 mm slit.



Optical configuration: MSH-150 monochromator

Ordering information monochromator	
<b>MSH-150</b>	150 mm monochromator, 2 manual variable slit assemblies, USB interface, 180° configuration, software and SDK
<b>MSZ-FW/6</b>	Programmable 6 position filter wheel for diameter 25 mm filters, inside mounted. Position 6 holds a blind plate.
<b>MSZ-MVSS-2</b>	Two motorized slit assemblies 10 $\mu\text{m}$ - 10 mm for motorized entrance and exit slit at the MSH 150 monochromator incl. compact micro stepping drive unit (replaces the manual micrometer slits)

Ordering information gratings			
Partnumber	Lines per mm (l/mm)	Blaze wavelength (nm)	Theoretical resolution for 1 mm slit (nm)
<b>High-resolution UV gratings</b>			
<b>MSG-S-2400-250</b>	2400	250	3
<b>MSG-S-1800-250</b>	1800	250	4
<b>MSG-S-1800-500</b>	1800	500	4
<b>1200 l/mm gratings</b>			
<b>MSG-S-1200-250</b>	1200	250	5
<b>MSG-S-1200-300</b>	1200	300	5
<b>MSG-S-1200-500</b>	1200	500	5
<b>MSG-S-1200-750</b>	1200	750	5
<b>830 l/mm gratings</b>			
<b>MSG-S-830-1200</b>	830	1200	8
<b>600 l/mm gratings</b>			
<b>MSG-S-600-300</b>	600	300	10
<b>MSG-S-600-500</b>	600	500	10
<b>MSG-S-600-750</b>	600	750	10
<b>MSG-S-600-1000</b>	600	1000	10
<b>MSG-S-600-1200</b>	600	1200	10
<b>MSG-S-600-1600</b>	600	1600	10
<b>Extended IR gratings</b>			
<b>MSG-S-300-3000</b>	300	300	20
<b>MSG-S-150-4000</b>	150	4000	40
<b>MSG-S-100-9000</b>	100	9000	60
<b>MSG-S-75-12000</b>	75	12000	80
<b>MSG-S-50-18000</b>	50	18000	100