DMc150 Double Monochromator

The DMc150 is the latest version of Bentham's highly successful compact double monochromator. It is designed for use in systems where scattered light must be kept to a minimum, such as:

- ***UV solar irradiance***
- ***High optical density filter transmission***
- ***UV measurements of artificial source***
- ***NVIS compatibility testing***
- ***Solar simulator equipment***

The unit requires no external power supply or control electronics. It incorporates an IEEE-488 interface with full control of wavelength drive and order sorting filter wheel.

Specification

Configuration	Two symmetrical Czerny Turner monochromators arranged for additive dispersion (or subtractive dispersion - factory set only)
Focal Length	Total focal length - 300mm; Individual Units - 150mm
Aperture Ratio	F/4
Slits	Interchangeable fixed slits, micrometer adjusted, variable or motorised (see over)
Order Sorting	Unit can be fully order sorted from 200nm to 30 microns by using option 252 and Bentham OS series of order sorting filters.
Gratings	33mm square plain gratings kinematically mounted to allow change-over without loss of calibration. A range of gratings covers 200nm to 30 microns.
Resolution	Limit resolution with 1200 lines/mm gratings is better than 0.5nm
Stray Light	For measurement of notch filter in visible with quartz halogen light, stray light is less than 10^{-8}.
Wavelength Scanning	By integral stepping motor and microstepping drive electronics
Maximum Scanning Speed	For 1200 lines/mm grating maximum scanning speed is 30nm/second.
Wavelength Accuracy	± 0.3nm over normal operating range of 1200 lines/mm grating (no software correction) ± 0.05nm with software correction
Reciprocal Dispersion	2.7nm/mm with 1200 lines/mm grating
PC Interface	Integral IEEE-488
Power Supply	Mains input 110/220V 50/60Hz
Weight	12kg
Overall Dimensions	300mm x 400mm x 180mm high
Construction	Single aluminium casting with rebated lid

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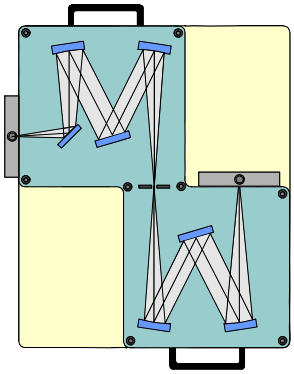
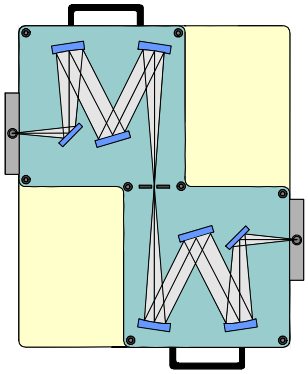
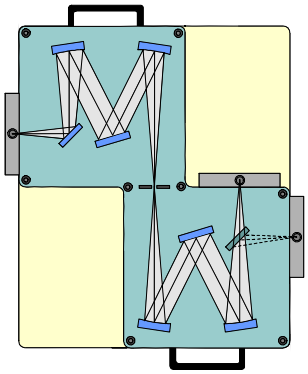


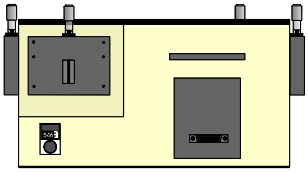
"C" Configuration



"I" Configuration



Fitted with exit SAM



Slits

The instrument can be supplied with three different types of slits:-

Fixed slits: Slits are supplied on interchangeable carriers. Three pairs of slits are included in price of DMc150 with fixed slits. Additional pairs of slits can be ordered separately.

Variable slits: Continuously variable, bilateral straight slits variable between 10mm and 8mm by a direct reading micrometer screw gauge.

Motorised slits: As variable slit except that micrometer is motor driven. Can be controlled by PMC3B/IEEE or MSC1 units. Slit height is 20mm in all cases. A slit height adjuster is available for variable slits.

Part No	Grooves/mm	Recommended wavelength range
G1524H0U25	2400	200nm - 675nm
G1518H0U25	1800	200nm - 900nm
G1512H0U25	1200	250nm - 1100nm
G1518R0U5	1800	200nm - 900nm
G1512R0U5	1200	250nm - 1200nm
G15083R1U2	830	600nm -1.8µm
G1506R1U6	600	0.8µm-2.5µm
G1503R3U0	300	1.5µm-5.5µm
G15015R40	150	2.4µm-8µm

These figures refer to the theoretical range of the instrument with each grating. In practice the usable range will depend on the blaze or peak efficiency wavelength of the grating. As a general guide the useful range of a blazed grating is .6 to 1.5 times the blaze wavelength.

For more details of the effect of blaze and a comparison of blazed and holographic gratings, refer to our grating datasheet.

Swing Away Mirrors

Programmable Swing Away Mirrors (SAMs) can be fitted at the exit for use with a second detector or at the entrance if no 252 filter wheel is fitted.

Order Sorting

An optional filter wheel, Model 252 can be fitted inside the DMc150 accommodating up to 6 filters for automatic higher order removal from 200nm to beyond 20mm using filters from our OS range. It is also fitted with a shutter for automated dark current measurements.

Model No.	Insertion Wavelength	Order sort up to
OS400	400 nm	720 nm
OS700	700 nm	1300 nm
OS1250	1250 nm	2 µm
OS2000	2 µm	3.6 µm
OS3600	2.6 µm	6.4 µm
OS6000	6.0 µm	11 µm
OS10500	10.5 µm	20 µm

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