

MSA-130

Double Additive/Subtractive Monochromator *



just turn the knob to switch between
Addition & Subtraction modes!

- Double Monochromator for Excellent Stray Light Rejection
- Subtraction & Addition Modes
- Compact & Economical
- High Throughput

Main feature of the MSA-130 is its capability to operate in the modes of both addition and subtraction of dispersions. It is <two in one>, the only instrument in the world capable to provide both modes without any additional alignment and calibration. Addition and Subtraction modes are exchanged by manual switching of a selector knob from the position "Addition" to "Subtraction" and vice versa.

In the Dispersion Addition Mode the MSA-130 has effective focal length of 260 nm. Extremely low stray light is determined by an intermediate slit and carefully calculated optical design.

In the Dispersion Subtraction Mode the MSA-130 serves as a tenable low-stray-light-filter with pass band selectable by the user. Central wavelength is set from a computer by synchronous turning of two identical diffraction gratings. Input, intermediate and exit slits have manual control and smooth micrometrical adjustment of the opening width.

The MSA-130 software allows calculating the FWHM in the both Dispersion Addition and Subtraction modes depending on the set widths of input, intermediate and exit slits.

Both input and output ports of the MSA-130 can be equipped with AFA Aperture Matching System ensuring input and output to be effectively made through optical fibers.

The AFA unit contains two achromatic objectives, SMA-905 connector and allows to match apertures of an optical fiber and monochromator in order to minimize losses of radiation and light scattered in the system.

* patented



Product Specifications*

Optical schematic	Modified Czerny-Turner double monochromator supplemented with an optical matching unit providing either additive or subtractive dispersion		
Focal length, mm the first monochromator: collimating mirror focusing mirror the second monochromator: collimating mirror focusing mirror		130 142	
Ports	1 input, 1 output		
F/Number	1 : 4.5		
Entrance&Exit slits Slit Width Slit Height Parallelism Micrometer Reading Accuracy	Micrometric adjustable from 0 to 2.0 mm 12 mm ± 1 µm ± 1 µm		
Intermediate slit Slit width Slit height Parallelism Micrometer Reading Accuracy	Micrometric adjustable from 0 to 5.0 mm 12 mm ± 1 µm ± 1 µm		
GRATINGS ¹⁾	Interchangeable two pairs are supplied with the instrument, third pair is an option		
Number of Lines per mm Grating Size, mm Blazing Wavelength, nm Usable Wavelength Range, nm ²⁾ Mechanical Range, nm	1200 25 x 25 x 8 280 190- 650 0 - 760	600 25 x 25 x 8 600 385 – 1300 0-1500	300 25 x 25 x 8 1500 770-2600 0 - 3000
WAVELENGTH Reciprocal Dispersion (average) of the first monochromator, nm/mm Wavelength Accuracy, nm Wavelength Repeatability, nm Wavelength Step Size, nm Wavelength Scan Speed, nm/s Wavelength Resolution, nm	5.8 ± 0.15 ± 0.05 0.01 19 0.07	11.6 ± 0.25 ± 0.1 0.02 38 0.14	23.2 ± 0.5 ± 0.2 0.04 76 0.28
Dispersion Addition Mode Reciprocal Dispersion (average), nm/mm Width of the Selected Spectral Range, nm	3.0 0.2 - 6	6.0 0.4 - 12	12.0 0.8 - 24
Dispersion Subtraction Mode Reciprocal Dispersion, nm/mm Width of the Selected Spectral Range, nm Width of 25µm Entrance Slit Image, µm with 2.5mm intermediate slit with 5.0mm intermediate slit	0 0.2 - 40 32 43	0 0.4 - 80 32 43	0 0.8 - 160 32 43
Stray Light	10 ⁻⁹		
Achromatic lens (used for the system adjustment)	Three-lens objective f=41.18nm supplied with the instrument		
Computer Interface	Full Speed USB		
Electrical Service Requirement	Single phase main 85-264 VAC; 47-63 Hz		
Dimensions, mm	265 × 195 × 210		
Weight, kg	8		

* Specifications are subject to change without notice

1) diffraction gratings with other lines per mm are available

2) the usable wavelength range covers wavelength where the grating efficiency is more than 0.3.

