

Double Additive/Subtractive Monochromator



The MSA-130 is a high-aperture double monochromator with the focal length of 130 mm, which operates in the modes of both addition and subtraction of dispersions. The monochromator operation modes are changed by switching of a selector knob from the position "Addition" to "Subtraction" and vice versa.

Applications

- Raman spectroscopy
- Emission and fluorescence spectroscopy
- Transmission/Absorption/Reflectance Measurements

Features

- Double monochromator for Excellent Stray Light Rejection
- Subtraction & Addition Modes
- Compact & Economical
- High Throughput
- Built-in High-Speed USB Interface

In the Dispersion Addition Mode

the instrument is the analog of a standard monochromator with the doubled resulting focal length of 260 mm and extremely low stray light.

In the Dispersion Subtraction Mode

MSA-130 ensures zero dispersion for the spectral range, whose width is determined by the intermediate slit, and the central wavelength is set by synchronous turning of two identical diffraction gratings. The instrument serves as a filter tunable in the range 190-1300nm with the pass band changed from 0,2nm to 80 nm, and low stray light level.

Control of diffraction gratings is made from a computer via High-Speed USB interface. Input, intermediate and exit slits have manual control and smooth micrometrical adjustment of the opening width. The MSA-130 software allows calculating the spectral width of the line separated by the monochromator in the both operating modes depending on the set width of input, intermediate and exit slits.

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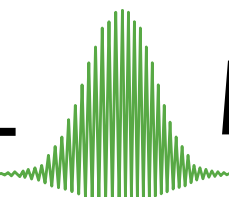
Specifications

Optical schematic	Modified Czerny-Turner double monochromator supplemented with an optical matching unit providing either additive or subtractive dispersion	
Focal length, mm 1-st monochromator, collimating mirror focusing mirror 2-nd monochromator, collimating mirror focusing mirror	130 142 142 130	
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 mkm +/- 1 mkm	
Intermediate slit Slit width Slit height Parallelism Micrometer Reading Accuracy	Micrometric adjustable from 0 to 5.0 mm 12 mm +/- 1 mkm +/- 1 mkm	
GRATINGS *	Interchangeable 2 pairs supplied with the instrument	
Number of Grooves per mm ** Grating Size Blazing Wavelength Usable Wavelength Range *** Scanning Wavelength Range	1200 g/mm 25 x 25 x 8 mm 280 nm 190 - 650 nm 0 - 760 nm	600 g/mm 25 x 25 x 8 mm 600 nm 385 - 1300 nm 0 - 1300 nm
WAVELENGTH Reciprocal Dispersion (average) of the first monochromator Wavelength Accuracy Wavelength Repeatability Wavelength Step Size Wavelength Scan Speed Wavelength Resolution	5.8 nm/mm +/- 0.15 nm +/- 0.05 nm 0.01 nm 19 nm/s 0.07 nm	11.6 nm/mm +/- 0.25 nm +/- 0.1 nm 0.02 nm 38 nm/s 0.14 nm
Dispersion Addition Mode Reciprocal Dispersion (average) Width of the Selected Spectral Range	3.0 nm/mm 0.2 - 6 nm	6.0 nm/mm 0.4 - 12 nm
Dispersion Subtraction Mode Reciprocal Dispersion Width of the Selected Spectral Range Width of 25mkm-Entrance Slit Image with 2.5mm intermediate slit with 5.0mm intermediate slit	0 0.2 - 40 nm 32 mkm 43 mkm	0 0.4 - 80 nm 32 mkm 43 mkm
Stray Light	10 ⁻⁹	
Computer Interface	High Speed USB	
Electrical Service Requirement	Single phase main 85 - 264 VAC; 47 - 63 Hz	
Dimensions	265 x 195 x 210 mm	
Weight	8 kg	

* no realignment is required after changing the pairs of gratings

** diffraction gratings with other grooves per mm number are available

*** the usable wavelength range covers wavelength where the grating efficiency is more than 0.3



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