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Spectrometers

Spectrometers

UV-Vis-NIR Spectrometers



NIR-MIR Spectrometers



High Resolution Spectrometers



Lowcost / OEM Spectrometers



Ethernet interface Spectrometers



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Monochromators

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Light Sources

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Filter Wheels

[AB series Automated Filter Wheels](#)
[AB series Order Sorting Filters](#)
[AB202 Double Filter Box](#)

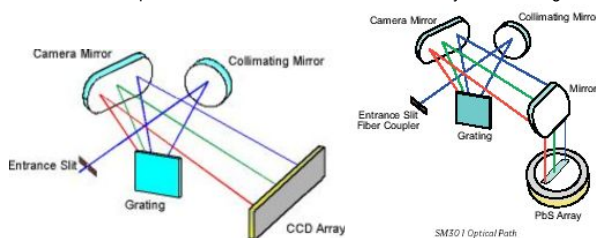
Accessories

[Integrating Spheres](#)
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Technology

In recent years the combination of array detector and spectrograph has become the system of choice for spectroscopy. Spectral Products' SM

line of computer-based miniature array spectrometers offer state-of-the-art performance yet have compact form factors. Their versatile design and ease of use make them the first choice for scientific and industrial applications. SM series optical benches are designed to provide stable operation over a wide range of ambient temperatures. SM product lines together with their accessories (light sources, filters, optical fibers and sampling accessories) are now used throughout the world in such systems as Raman spectroscopy, emission and excitation fluorescence/luminescence spectroscopy, arc/spark/plasma spectroscopy, spectrophotometry, spectroradiometry, laser breakdown spectroscopy, picosecond laser analysis, radiometry, infrared measurements, color/LED measurement, process control/diagnostic/calibration and so on. Spectral Products provides a wide selection of UV/VIS/NIR(regular and back-thinned/TE-cooled CCD) and NIR/MIR (InGaAs, PbS and PbSe) detectors, and some useful sampling accessories for their application. SP's SM miniature spectrometers are packed with great features and performance in a small footprint. The SM series spectrometers are based on a crossed Czerny-Turner configuration.



Operation

Connections between the spectrometer and the computer interface are made via a shielded electrical cable. Detector arrays are also included in the same housing in hand held versions. SM spectrometers can be interfaced to computers via USB, PCI, PCMCIA, ISA, etc. Especially, our USB 2.0, 16-bit A/D interface gives our SM series spectrometers some of the most effective dynamic ranges and high data acquisition speeds available.

Considerations

Detector	SM spectrometers employ 2048 pixels Si-CCD (Sony ILX511), 3648 pixels Si-CCD (Toshiba TCD1304), 1024 pixels back-thinned TE cooled CCD (Hamamatsu S7031-1006), 2048 pixels back-thinned CCD (Hamamatsu S10420-1106-01), 256/512 pixels multiplexed InGaAs (Hamamatsu G9204, G9206, and G9208 series), 256 pixels PbS/PbSe detector arrays (IR Materials) with high sensitivity. A sensing element height of 200nm to 1,050nm (CCD)/0.9µm to 1.7µm (InGaAs) or up to 2.5µm (extended InGaAs)/ 1.0µm to 3.0µm (PbS)/1.5µm to 5.0µm (PbSe) maximizes the detector light collection capability. For UV and near IR regions where regular silicon CCD detector response is inherently weak, we provide a variety of sensitivity enhancement coatings for detector arrays. Every IR range detector is thermoelectrically cooled and temperature stabilized to ensure long-term operation stability.
Optics	Our pioneering optics and coating technologies also allow us to take another step further to reduce energy lost between optical surfaces.
Filters	By use of SP's unique linear variable long pass filters in SM spectrometers, a wide, simultaneous wavelength coverage is achieved, free of higher order interference.
Gratings and Slits	We offer various ruled and holographic gratings depending on the wavelength range. Also, several slits are available for various resolution and throughput.
Applications	SM spectrometers can be applied to various fields such as: <ul style="list-style-type: none"> - Semiconductor industry process diagnostics - Light source/Sample spectrum analysis - Color/Fluorescence measurement - Biology/Chemistry/Biochemistry/Medical applications - Food and Agriculture/Pollution measurement - Chemicals/Plastics/Polymers analysis - Petrochemicals/Pharmaceutical analysis



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