Low Noise Non TE-Cooled Back-thinned Spectrometer

SM642

SM642

Low Noise Non TE-Cooled Backthinned Spectrometer

Low Cost and High Performance Backthinned CCD Spectrometer

Low Dark Current Noise and Stray Light for Spectrophotometer / Spectro-radiometer

High Signal to Noise Ratio (SNR)

High Ultra-Violet Quantum Efficiency

High Speed Data Acquisition

Optical Dark Option (Auto Shutter)

The Choice for Low Signal Level Applications

Spectral Products is offering the new SM642 Non-TE cooled back-thinned 2048-pixel array CCD spectrometer. The SM642 provides high quantum efficiency in UV and high dynamic range. The detector used in the SM642 has 2048 pixels and helps to get better resolution. It is ideal for UV/VIS/NIR spectrometry that requires high signal to noise ratio and/or high dynamic range.

The back-thinned CCD has excellent sensitivity in UV and allows deep UV application, even below 200nm. Well designed housing allows a wide measurement window like from 200nm to 1050nm (smaller measurement window sizes increase spectral resolution and light sensitivity) with low stray light.

Standard interface of the SM642 series is a USB 1.1/2.0 compatible interface with 16-bit AD conversion. Our USB board can support multichannel configuration up to 8. With this multichannel configuration, a high resolution for wide range or a dual spectrometer system (one for measurement and the other for reference) is possible.

Software support includes an SDK and DLLs for dedicated applications development and our SM32Pro Windows-based spectral acquisition and analysis software.

Specifications :

| Physical Dimension	
Dimensions	5.98 x 3.94 x 2.5 inches (152 X 100 X 63.6mm)
Weight	2.64lbs (1.2 kg)
Fiber Optic Connector	SMA905 N.A.=0.22 Optical Fiber Input
Detector	
Detector	Hamamatsu S10420-1106S (Non TE-Cooled Backthinned FFT CCD)
Cooling	None
Windows Material	Quartz
Spectral Response Range	200-1050 nm
Pixels	2068 X 70 pixels (Total) 2048 X 64 pixels (Effective)
Pixel Size	14 µm X 14 µm
Active Area	28.672 mm X 0.896 mm
Full Well Capacity	200 ke-
Quantum Efficiency	>75 % @ 600 nm
Optical Specification	
Wavelength Range	Full Range : 200-1050 nm
	UV/VIS Range : 200-800 nm
	VIS Range : 300-900 nm
	Other user customized range
Optical Resolution	0.25-7 nm , dependent on spectral range, slit width, and fiber core diameter
Dark	Auto Shutter
Dark Noise RMS	< 7 in 16bit @ 35ms integration time
Signal to Noise Ratio (SNR)	450 : 1
Stray Light	<0.05 % AVG
Filter	Second Order Blocking Filter Installed
Electrical Specification	
ADC resolution	16bit (0-65535)
Minimum Integration Time	7 msec
Computer Interface	USB 1.1/2.0 Compatible
Trigger Mode	Free Run Mode
	Software Trigger Mode
	External trigger mode (9-pin connector) : TTL Edge trigger input/digital output for monitoring
Power Input	100~240V(47~63Hz),1.9A
Computer	
Operating System	Windows XP/Windows VISTA/Win 7/Win 8.1/Windows10 (32/64 bit)
Software	SM32ProMX
Software Development Kit	Visual C++ DLL /LabVIEW VI SDK

Applications

Process Condition Monitoring in Semiconductor Fabrications

- High resolution optical monitoring and diagnostics of plasma process
- Real time measurement of plasma information as like electron and gas temperatures


High Resolution

0.2 ~ 0.5 nm FWHM
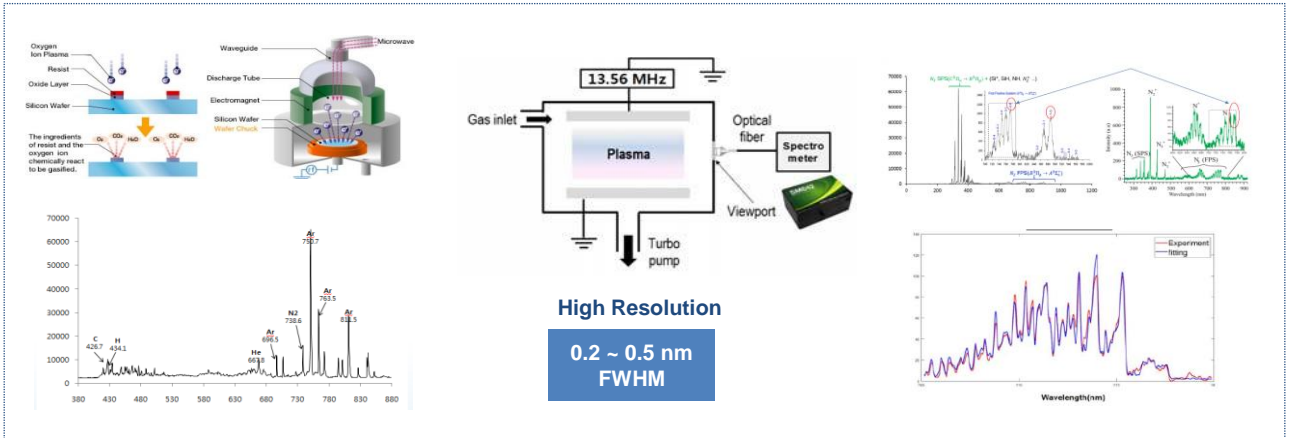
Film Measurement by SE & SR

- Optical sensor for measurement of thickness and optical properties of films
- Main sensor for spectroscopic ellipsometer(SE) and spectroscopic reflectometer(SR)

Ellipso Technology
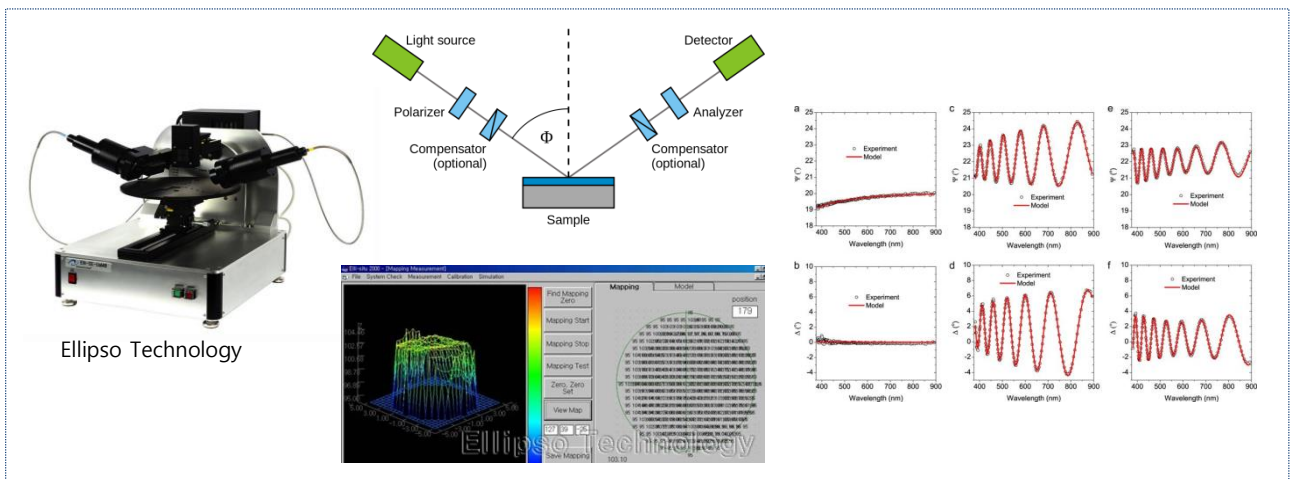
Raman Spectrum Analysis

- High optical resolution spectrometer for Raman spectrum measurements (down to 0.2 nm)
- Customization for field usage in various scientific and industrial application
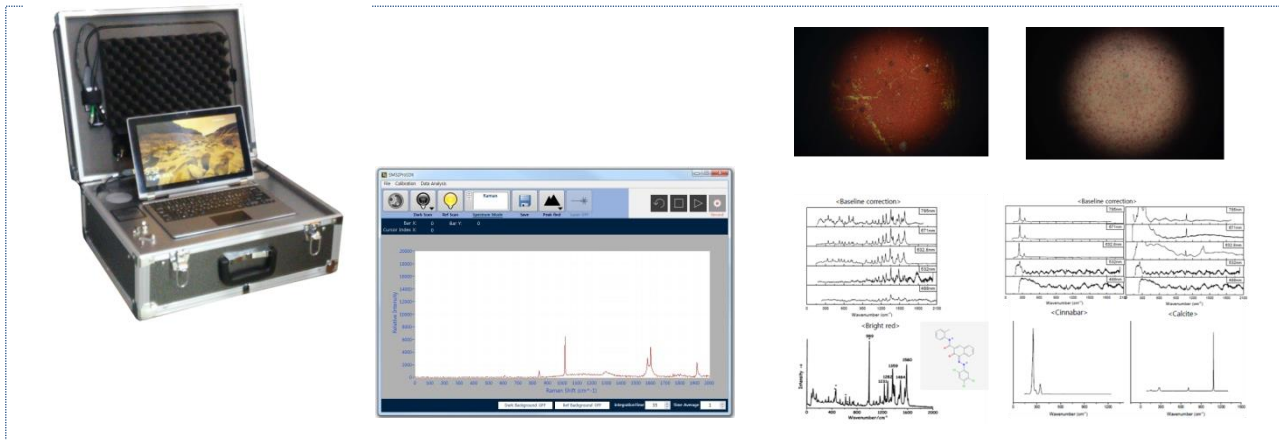
Real Time UV/VIS Spectrophotometer

- Real time measurement of transmission and absorbance of solid, liquid samples
- Convergence with gas detection sensors for environmental and agricultural monitoring purposes

Case Dimension:

Units in mm

Ordering Information : Please indicate product number plus description when ordering

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