

Low Noise Non TE-Cooled Backthinned Spectrometer

SM642-HRS



Non TE-Cooled Backthinned Spectrometer

SM642-HRS High Resolution Spectrometer

Low Cost and High Performance Backthinned CCD Spectrometer

Low Dark Current Noise and Stray Light for Spectrophotometer / Spectroradiometer

High Signal to Noise Ratio

High Ultra-Violet Quantum Efficiency

High Speed Data Acquisition

Dark Option (Auto Shutter)



The Choice for Low Signal Level Applications

Spectral Products is offering the new SM642-HRS non-TE cooled back-thinned 2048 pixels array CCD spectrometer. The SM642-HRS provides high quantum efficiency in UV and high dynamic range. The detector used in the SM642-HRS 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 to the SM642-HRS is a USB 1.1/2.0 compatible interface with 16-bit. Software support includes SDKs and DLLs for dedicated applications development and our SM32Pro & SMProMX Windows-based spectral acquisition and analysis software.

Specifications :

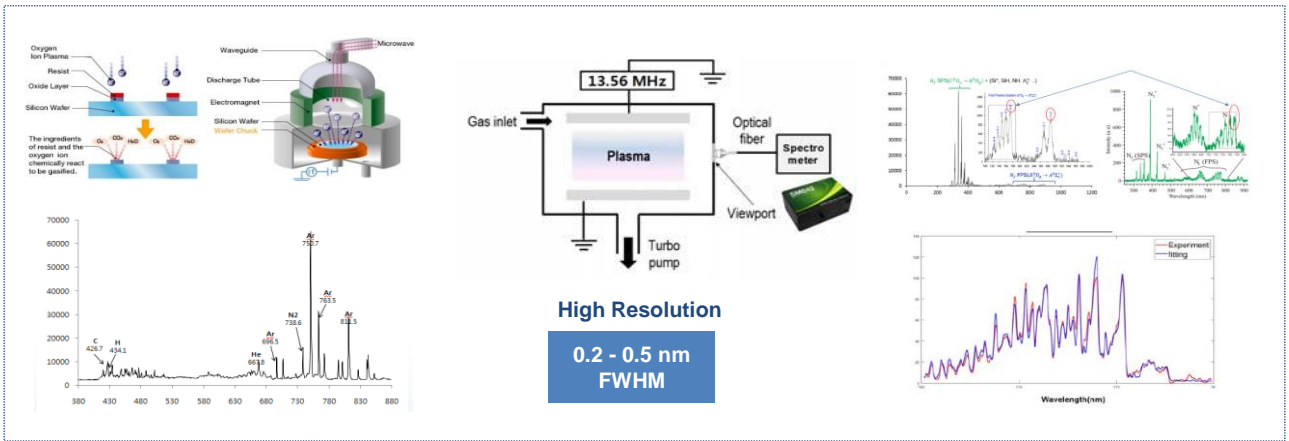
Physical Dimension	
Dimensions (inches)	220mm X 175mm X 85.5mm (8.66 X 6.89 X 3.37)
Weight	3.0kg (6.5lbs)
Fiber Optic Connector	SMA905 N.A.=0.22 Optical Fiber Input
Detector	
Detector	Hamamatsu S10420-1106S (Non TE-Cooled Backthinned FFT CCD)
Cooling	None
Windows Material	Quartz
Spectral Response Range	~200-1050nm
Pixels	2068 X 70 pixels (Total) 2048 X 64 pixels (Effective)
Pixel Size	14 um X 14 um
Active Area	28.672 mm X 0.896 mm
Full Well Capacity	200 ke-
Quantun Efficiency	>75% @ 600nm
Optical Specification	
Wavelength Range	Range : ~200 - 1050nm Other user customized ranges are available
Optical Resolution	~0.1-7 nm FWHM AVG, dependent on spectral range slit width, and fiber diameter
Dark	Auto Shutter (option)
Dark Noise RMS	< 7 RMS counts in 16bit @ 35msec integration time
Signal to Noise Ratio	450 : 1
Stray Light	<0.05% AVG
Filter	Second Order Blocking Filter Installed
Electrical Specification	
ADC resolution	16bit (0-65535)
Minimum Integration Time	7msec
Interface	USB 1.1/2.0 Compatible
Trigger Mode	Free Run Mode Software Trigger Mode External Trigger Mode (20-pin connector): TTL Edge Trigger Input
Power Input	100-240V(47-63Hz),1.9A
Computer	
Operating System	Windows XP/Windows VISTA/Win 7/Win 8.1/Win 10 (32/64 bit)
Software	SM32Pro (basic) & SMProMX (advanced)
Software Development Kit	Visual C#/C++, LabVIEW, Matlab, etc



Applications

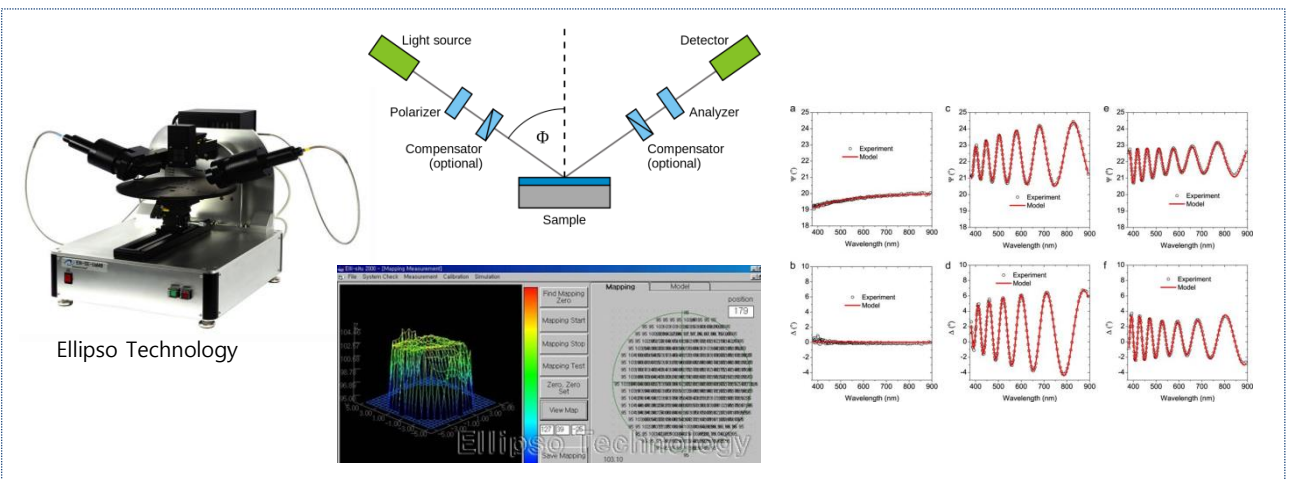
Process Condition Monitoring in Semiconductor Fabrications

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



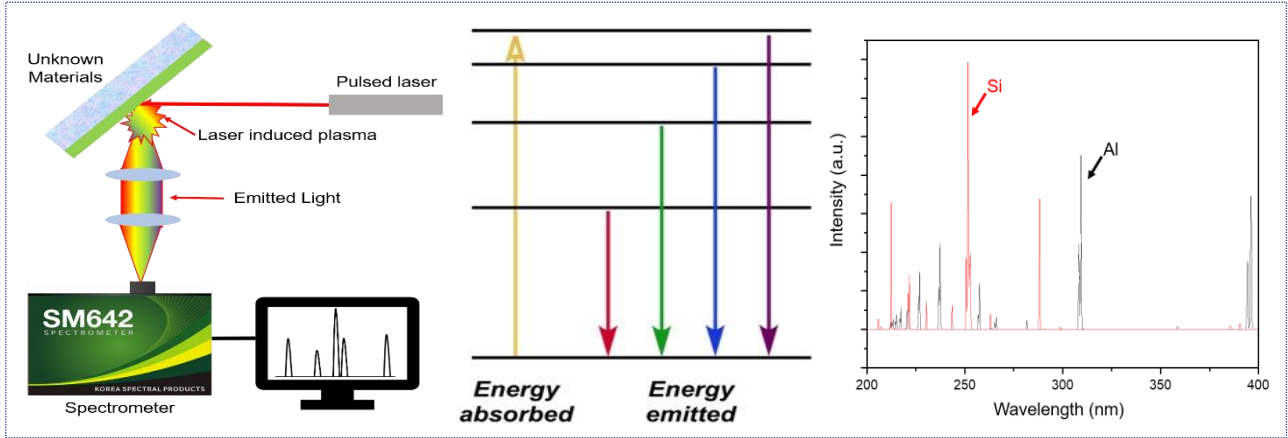
Film Measurement by SE & SR

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



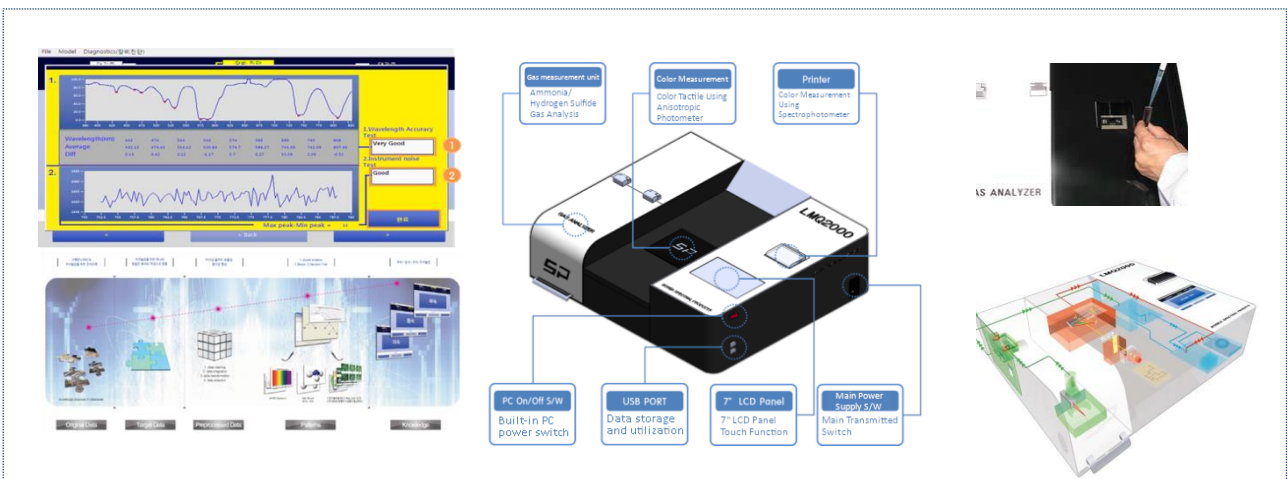
Laser induced breakdown spectroscopy (LIBS)

- LIBS is considered one of the most convenient and efficient analytical techniques for trace elemental analysis in gases
- Semiconductor components/Recycling industry/Material Analysis/Energy production/Mineral Extraction/Etc

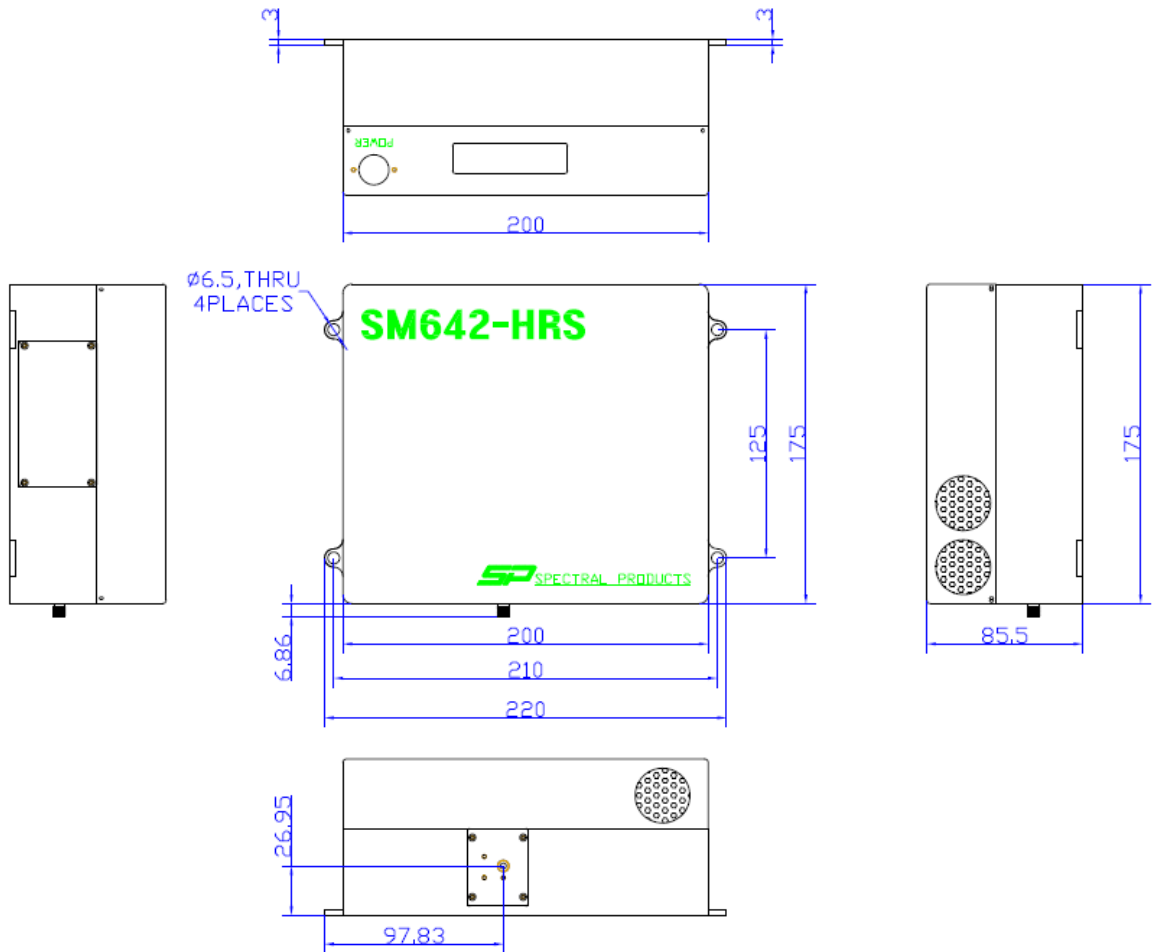


Real Time UV/VIS Spectrophotometer

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



Case Dimension :



Ordering Information : Please indicate product number plus description when ordering
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