High Resolution TE-Cooled Backthinned Spectrometer

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SM303-HRS

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High Resolution Spectrometer

Scientific-grade High Performance

Extremely Low Dark 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 SM303-HRS TE cooled back-thinned 1024- or 2048-pixels array CCD spectrometer. The SM303-HRS is ideal for UV/VIS/NIR spectrometry that requires very high signal to noise ratio and/or high dynamic range, like fluorescence, Rama, LED property testing applications. The back-thinned CCD has excellent sensitivity in UV and allows deep UV application.
Well designed housing allows up to an 900nm measurement window from 200nm to 1100nm (smaller measurement window sizes increase spectral resolution and light sensitivity) with very low stray light. The TE cooled detector also help to measure very low light signals by reducing the noise level in long integration times. Thanks to the high dynamic range and the low noise, the SM303-HRS is also ideal for radiometric measurement applications. Standard interface to the SM303-HRS is a USB 1.1/2.0 compatible interface with 16-bit. Software support includes some SDK and DLLs for dedicated applications development and our SM32Pro/SMProMX Windows-based spectral acquisition and analysis software.

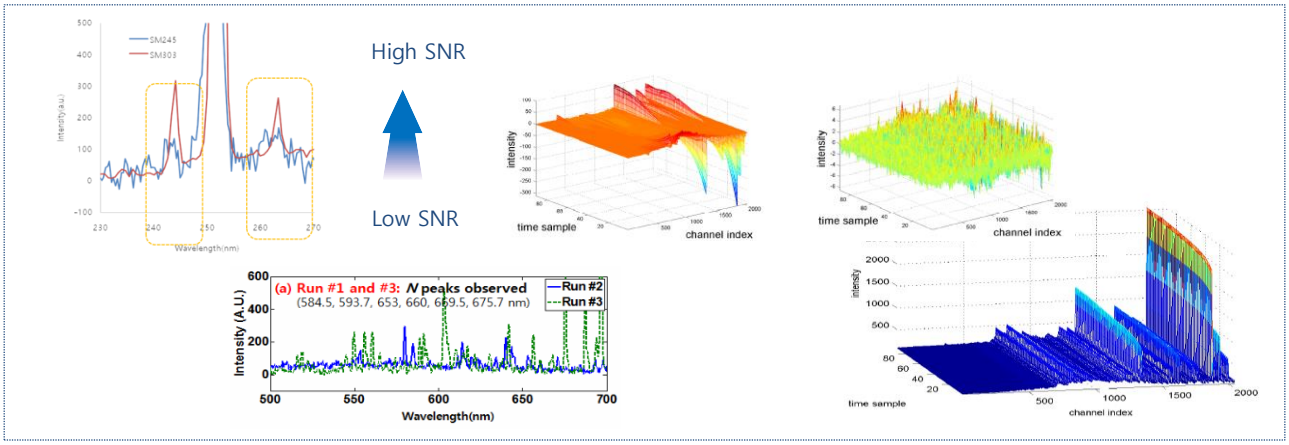
Specifications :

Physical Dimension		
Dimensions	9.25" X 6.95" X 3.75" (235mm X 176.5mm X 95.3mm)	
Weight	8.2lbs (3.7kg)	
Fiber Optic Connector	SMA905 N.A.=0.22 Optical Fiber Input	
Detector		
Detector	Hamamatsu S7031-1006 (TE Cooled Backthinned FFT CCD)	Hamamatsu S10141-1107S (TE Cooled Backthinned FFT CCD)
Cooling	One Stage TE(thermo-electric) Cooling (-10℃)	One Stage TE(thermo-electric) Cooling (-10℃)
Spectral Response Range	~200 - 1100nm at max	~200 - 1100nm at max
Pixels	1044 X 64 pixels (Total)	2068 X 128 pixels (Total)
	1024 X 58 pixels (Effective)	2048 X 122 pixels (Effective)
Pixel Size	24 um X 24 um	12 um X 12 um
Active Area	24.576 mm X 1.392 mm	24.576 mm X 1.464 mm
Full Well Capacity	300 Ke- (Vertical) 600 Ke- (Horizontal)	60 Ke- (Vertical) 400 Ke- (Horizontal)
Quantun Efficuency	>90% @ 650nm	90% or higher at peak
Optical Specification		
Wavelength Range	Full Range : ~200-1100nm	
	UV/VIS Range : ~200-800nm	
	Visible Range: ~300-900nm	
	other user customized range	
Optical Resolution	~0.2-7nm, dependent on spectral range, slit width, fiber diameter, and so on	
Dark	Auto Shutter	
Dark Noise RMS	TYP >2 @Min. Integration Time	TYP >9 @Min. Integration Time
Signal to Noise Ratio	>1000 : 1 at single scan	>300 : 1 at single scan
Stray Light	<0.05% AVG	
Filter	Second Order Blocking Filter Installed	
Electrical Specification		
ADC resolution	16bit (0-65535)	
Minimum Integration Time	7 msec	8 msec
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/VISTA/Win7/Win8.1/Win10(32/64bit)	
Software	SM32Pro & SMProMX software included	
Software Development Kit	Visual C++ DLL /LabVIEW VI SDK	

Applications

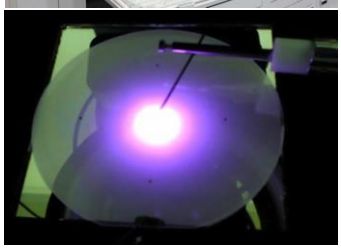
Low Spectrum Signal Detection with High Accuracy

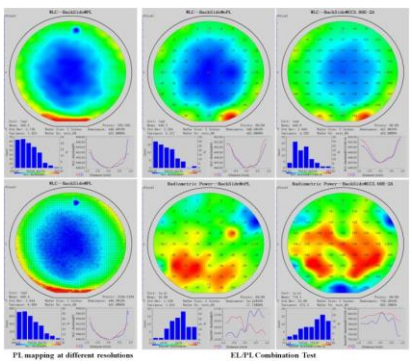
- High accurate optical monitoring and diagnostics of low spectrum intensity signals
- Acquisition of stable time trends of intensity signals by help of internal TE(thermo-electric) cooling

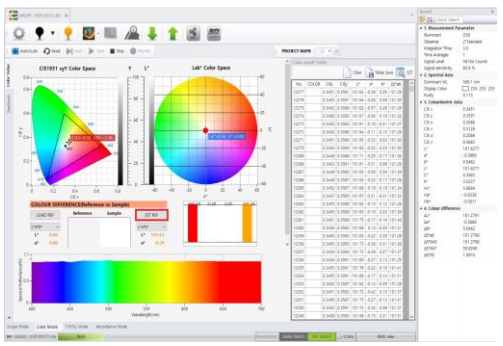


Measurement of Photometric and Radiometric Values

- Quantitative measurement and analysis of photometric and radiometric values for light sources
- Optical Sensor of Testers for real time monitoring and quality control for LED/OLED fabrication

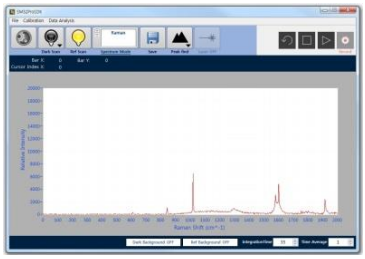


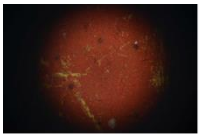


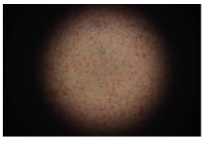


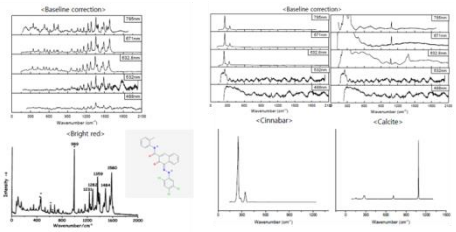
Raman Spectrum Analysis

- High sensitive and stable measurements of low intensity Raman scattering signals
- Customization for field usage in various scientific and industrial application



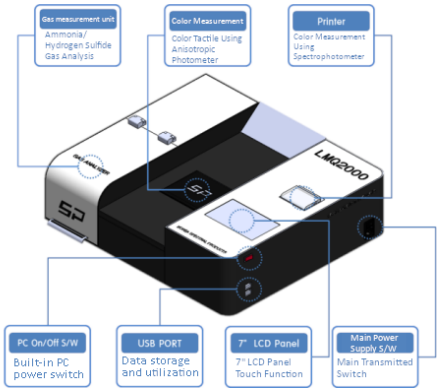


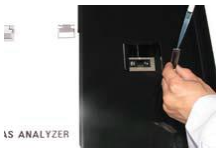


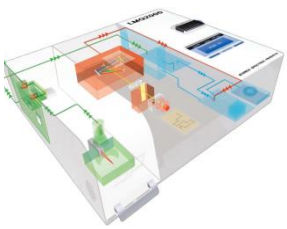


Real Time High Accuracy UV/VIS Spectrophotometer

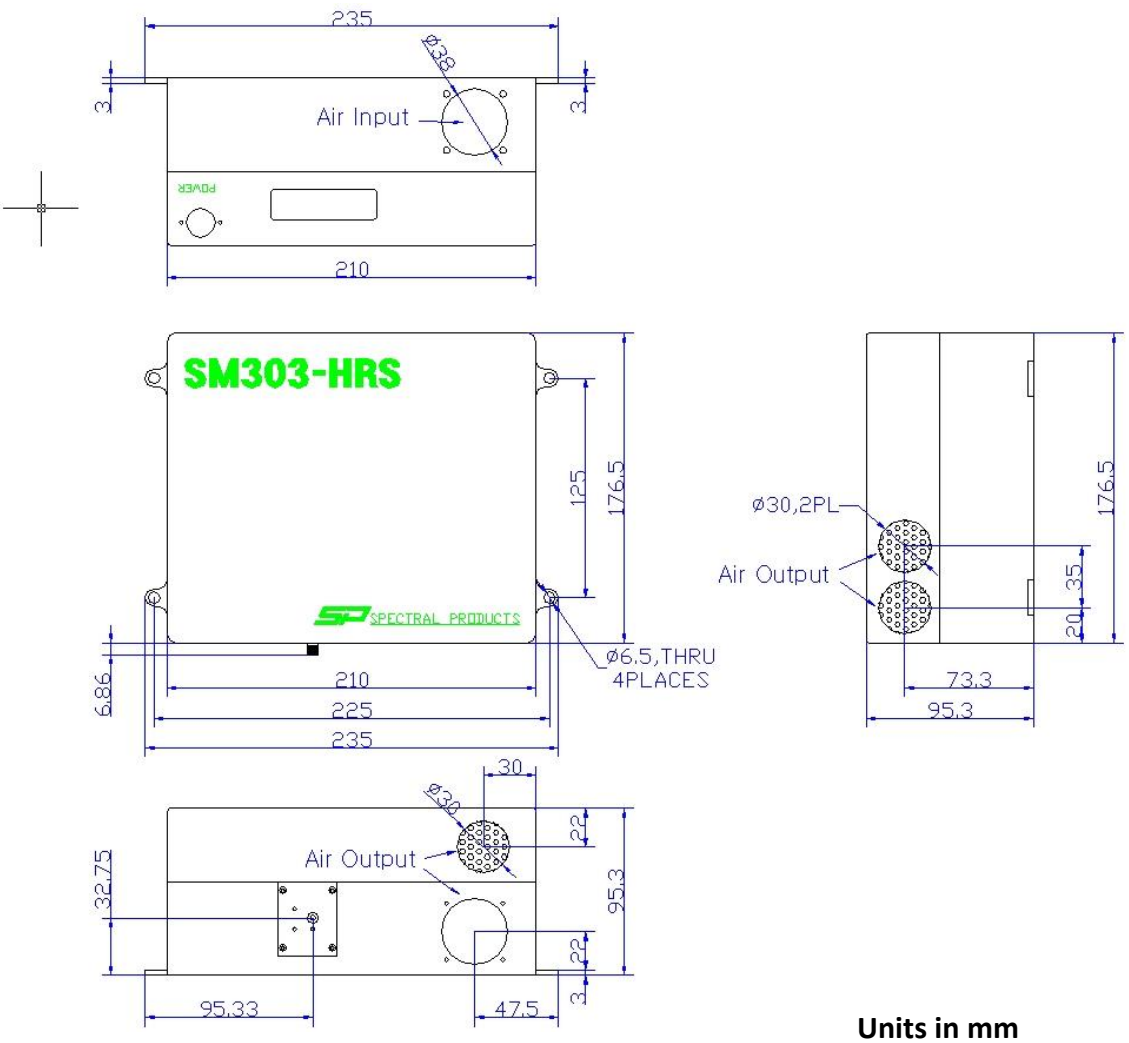
- Real time high accurate measurement of transmission and absorbance of solid, liquid samples
- Convergence with gas detection sensors for environmental and agricultural monitoring purposes







Case Dimension :



Units in mm

Ordering Information : Please indicate product number plus description when ordering

SM303-HRS High Resolution Spectrometer w/1024-pixel CCD

SM303-HRS-2048 High Resolution Spectrometer w/2048-pixel CCD