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Spectrometer

Sol™ 2.2A

900 - 2200nm NIR TE Cooled InGaAs Array Spectrometer



The Sol™ 2.2A is a high performance linear InGaAs array spectrometer featuring 256 pixels and providing high throughput and large dynamic range with TE cooling down to -15°C via a built-in 3-stage cooler.

Each spectrometer features an SMA 905 fiber optic input, built-in 16-bit digitizer, and is USB 2.0 plug-and-play compatible. The built-in autozero function automatically reduces dark current and dark non-uniformity, resulting in an increased signal-to-noise ratio.

Software control allows the user to choose from four types of operation modes: Maximum Dynamic, High Dynamic, High Sensitivity, and Maximum Sensitivity. Customized spectral resolution and application support are also available.

Applications:

- Process monitoring
- NIR spectroscopy
- Quality control
- On-line analyzer
- Material identification

Accessories:

- Light sources
- Fiber patch cords
- Fiber sampling probes
- Fiber sample holders

Features:

- 900nm - 2200nm spectral range
- Resolution as fine as 9.0Nm
- -15°C Thermoelectric Cooling
- Built-in autozero (noise level reduction)
- Four sensitivity & dynamic range modes for specific application needs

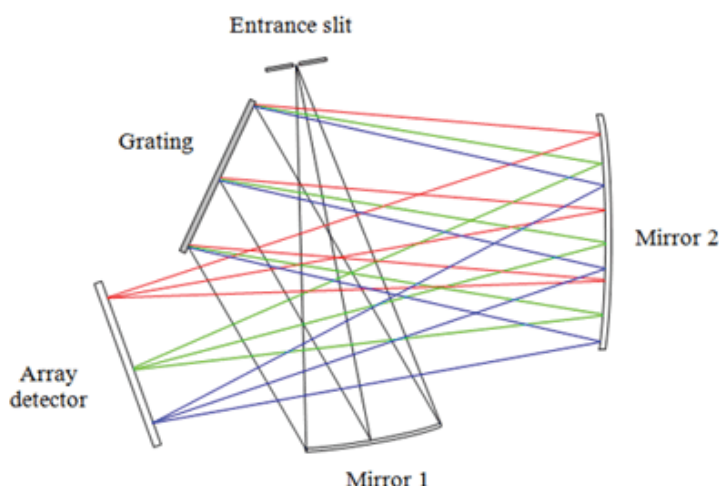
Thermoelectric Cooler

Cooling an array detector with a built-in thermoelectric cooler (TEC) is an effective way to reduce dark current and noise, as well as to enhance the dynamic range and detection limit.

When the InGaAs array detector is cooled from a room temperature of 25°C down to -15°C by the TEC, the dark current is reduced by ~32 times and the dark noise is reduced by ~5.7 times. This allows the spectrometer to operate at longer exposure times and to detect weaker optical signals.

DC Power Input	5V DC @ 5 amps
AC Adapter Input	100 - 240VAC 50/60 Hz, 1.0A @ 120VAC
Detector Type	Linear InGaAs Array
Pixels	256 x 1 @ 50µm x 250µm per element
Spectrograph f/#	3.5
Spectrograph Optical Layout	Crossed Czerny-Turner
Dynamic Range	Maximum Dynamic mode: 25,000:1 High Dynamic mode: 12,500:1 High Sensitivity mode: 12,500:1 Maximum Sensitivity mode: 1,700:1
Digitizer Resolution	16-bit or 65,535:1
Readout Speed	500 kHz
Data Transfer Speed	>300 spectra per second via USB 2.0
Integration Time	250µs to >= 64 Seconds
External Trigger	Aux port
Operating Temperature	0°C - 35°C
TE Cooling	Three-Stage: -15°C @ relative humidity = 90%
Weight	~ 3.1 lbs (1.4 kg)
Dimensions	7.5in x 4.3in x 2.7in (192mm x 109mm x 68mm)
Computer Interface	USB 2.0 / 1.1
Operating Systems	Windows: 7, 8, 8.1 (32-bit & 64-bit)

Spectrograph



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Entrance Slit

Slit Option	Dimensions	Approximate Resolution 1100 - 2200nm
50µm	50µm wide x 1mm high	~9.0nm
100µm	100µm wide x 1mm high	~18.0nm
Custom slit widths available		

Diffraction Grating

Spectral Coverage (nm)	Grating	Approximate Resolution 50µm Slit
1100-2200	100/1600	9.0nm
900-2200	85/1350	15.0nm
Custom configurations available		

Software:

BWSpec® is a spectral data acquisition software with a wide range of tools that are designed to perform complex measurements and calculations at the click of a button. It allows the user to choose between multiple data formats and offers optimization of scanning parameters, such as integration time. In addition to powerful data acquisition and data processing, other features include automatic dark removal, spectrum smoothing, and manual/auto baseline correction.

