

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.

Specifications:

| | |
|-----------------------------|---|
| 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) |

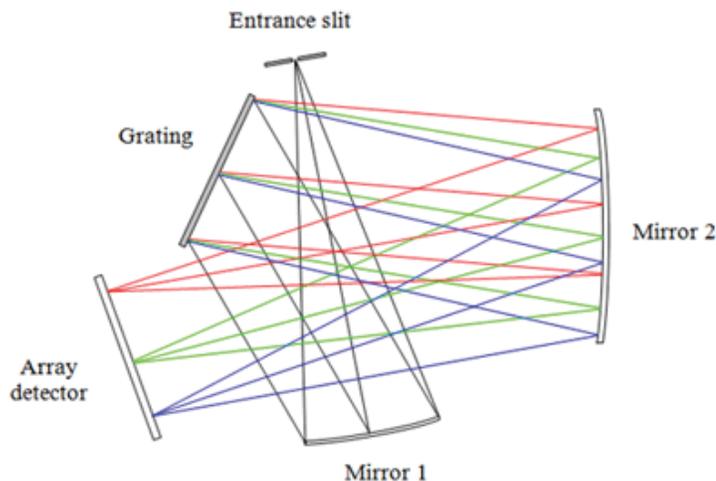
Entrance Slit

| Slit Option | Dimensions | Approximate Resolution 1100 - 2200nm |
|------------------------------|------------------------|---|
| 50µm | 50µm wide x 1 mm high | ~9.0nm |
| 100µm | 100µm wide x 1 mm 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 | | |

Spectrograph



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.

