

SM301/SM301-EX PbS/PbSe

Array Spectrometer

- Low Noise
- Cooled, Stable Operation
- 256 Detection Elements
- Accommodates spectral measurements in the 1.0 to 3.0 micron (PbS) or 1.5 to 5.0 micron (PbSe) region
- Optical input direct to slit or via fiber



The Choice for MIR Spectral Applications

The SM301/SM301-EX is a versatile, high performance PbS/PbSe array spectrometer. Its active components include a TE cooler and a 256-element PbS/PbSe detector element array. Operation of the unit for research applications is easy with the included SM32Pro - Windows based analysis software. The system is ideal for spectroscopic applications in the 1.0 to 3.0 micron (PbS) or 1.5 to 5.0 micron (PbSe) region.

The SM301/SM301-EX includes thermoelectric cooling to guarantee long-term operational stability. The SM301/SM301-EX employs a multiplexed PbS/PbSe array as its NIR detection element. The array is cooled and temperature stabilized at around -4°C which ensures long-term operation stability. Dark signal can thus be automatically measured by the built-in electronics periodically and subtracted automatically. Compared with conventional scanning NIR spectrometers the SM301/SM301-EX provides the multi-channel detection advantage, both in reducing the measurement time and enhancing measurement signal-to-noise ratio. The SM301/SM301-EX can operate at a readout rate of 2MHz or faster allowing fast measurement and averaging operation to be performed in a short period of time.

Software

- SM32Pro - Windows[®] 98, 2000, XP, 7 based software (supporting 32bit & 64bit) for data acquisition and analysis
- Transmission, reflectance and absorbance measurements
- Data export, zoom in and out, spectrum overlays and many more features
- Signal average and integration time control
- SDK and DLLs available for easy custom software development

| Feature | Value | |
|--------------------------|--|--|
| | SM301 | SM301-EX |
| Detectors | PbS <ul style="list-style-type: none"> • Number of Pixels: 256 • Sensing Pixel Size: 45μm x 450μm • Peak Detectivity (D^*): 1x10¹¹cmHz^{0.5}W⁻¹ • Pixel Clock: 2MHz max. for 4MHz data output • Linearity: >90% • Response uniformity (peak to peak): \pm 10% of array single mean | PbS <ul style="list-style-type: none"> • Number of Pixels: 256 • Sensing Pixel Size: 45μm x 450μm • Peak Detectivity (D^*): 1x10¹¹cmHz^{0.5}W⁻¹ • Pixel Clock: 2MHz max. for 4MHz data output • Linearity: >90% • Response uniformity (peak to peak): \pm 10% of array single mean |
| Effective Spectral Range | 1.0 to 3.0 μ m | 1.5 to 5.0 μ m |
| Computer interface | USB 1.1/2.0 16 bit 500KHz | |
| Spectrograph f# | 3.5 | |
| Integration Time | 0.01 to 200 msec (on board) | |
| Slit Options | 10, 25, 50, 100 μ m (default: 25 μ m) | |
| Fiber Coupler | SMA905 or FC standard | |
| Spectral Resolution | 10 to 30nm depending on the slit and grating (covering wavelength) choices | |
| Stray Light | Better than 0.1% | |
| TE Cooling temperature | -4 $^{\circ}$ C ARO | |
| Dimensions (inches) | 5.75 L X 3.75 W X 3.28 H | |
| Weight | 2.0 lbs. | |
| Software | SM32Pro (free with spectrometer) Includes DLL libraries and SDKs for easy custom application development | |