

Title: Redshift NIR I Mini Spectrometer

Material / Specification: 900-1700nm

Part number(s): OSP0501, OSP0502, OSP0503, OSP0504, OSP0505, OSP0506, OSP0507, OSP0508, OSP0509, OSP0510, OSP0511

Our complete ranges of mini spectrometers are designed with operating efficiency in mind.

Our Redshift NIR I high performance mini spectrometer is designed to cover the NIR wavelength range from 0.9-1.7μm. Boasting an InGaAs (indium gallium arsenide) detector with a high quality "Sensors Unlimited" linear photo diode array comprised of 512 pixels, 25μm by 500μm tall to provide the greatest sensitivity. The detector has an integrated TEC (thermo electric cooler) maintained at a steady -10 degrees +/- 0.1 degrees to ensure an enhanced signal-to-noise ratio. The Redshift mini spectrometer is a "plug & play" system and comes supplied with everything required to start testing straight out of the box. Install the software, plug the system in and begin measuring without the fuss.

The Redshift NIR I mini spectrometer has no moving parts and is enclosed in a rugged case for exceptional durability making it both portable and reliable out in the field.

The Redshift NIR I mini spectrometer is suitable for a range of NIR applications including, but not limited to spectroradiometry, optical power measurements, laser characterization and thin film measurements. Chemical applications include chemical ID and moisture analysis. Dual and multi-beam applications can be achieved by configuring two or more mini spectrometers together using the USB-2 connections supplied.



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Specifications:

Model:	NIR I
Dynamic range:	4000:1 with 6 decades
Optical resolution:	3.1nm with 25µm slit
Detector type:	512 pixel cooled PDA
Detector range:	900-1700nm
Grating:	250g/mm
Grating Range:	800nm
Dispersion:	1.562nm/pixel
Pixel size:	25µm x 500µm
Pixel Well Depth:	130 x10 ⁸ electrons
Selectable Well Control:	130 x10 ⁸ or 5 x10 ⁶ electrons
Signal to noise:	4000:1 with TEC
Digitizer:	16-bit
Dimensions:	NIR I-V models 127x76x51mm HR/X/SR models 160x100x70mm
Power consumption:	2 Amps @ 5 VDC
Interface:	USB-2 and Parallel
Data Transfer Speed:	40x faster than USB-1
Detector Integration:	1 millisecond to 30 seconds
Slit size options:	25, 50, 100, or 200µm
Operating systems:	Windows XP/Vista/7/8
Software included:	SpectraWiz program & apps
Also free programs for:	LabView, Excel + VBA, Delphi

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Variations of the Redshift NIR I:

Model	Spectrometer Range (nm)	No. of Elements	Est. Resolving Resolution	Grating (g/mm)	Grating Range (nm)	Dispersion (nm/pixel)
NIR I	900-1700	512	2.50	250	800	1.250
NIR II	900-1600	512	2.00	300	650	1.000
NIR III	1250-1575	512	1.00	600	325	0.500
NIR IV	1150-1475	512	1.00	600	325	0.500
NIR V	1000-1700	1024	1.25	600	700	0.620
NIR-HR 512	1530-1605	512	0.40	1200	70	0.195
NIR-HR 1024	1500-1640	1024	0.40	1200	140	0.195
NIR-X I	1500-2200	512	2.80	300	700	1.367
NIR-X II	1500-2200	1024	1.40	600	700	0.683
NIR-SR 512	900-2300	512	13.0	300	1400	5.300
NIR-SR 1024	900-2300	1024	7.00	600	1400	2.700

Variations:

To cover all possible applications you can choose between our standard model Redshift NIR I spectrometer and any of the many variations available. By changing the number of elements in the PDA detector and by swapping grating sizes we are able to offer a greater range of measurement capabilities including dedicated telecoms systems for 1500-1600nm. We are also excited to offer both HR and SR models for high resolutions or extended ranges respectively. These options have been listed in the purchasing table within this category. For ease of use you will also find these variations listed in the table above.

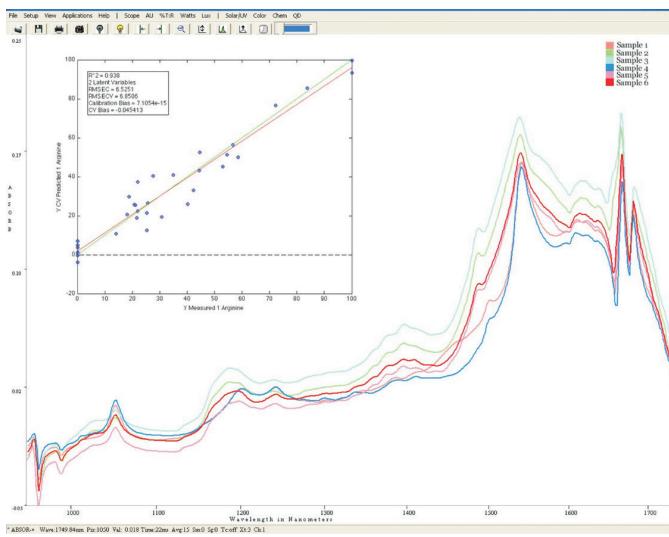
All our mini spectrometers are supplied with intuitive Windows XP, Vista, 7 and 8 compatible SpectraWiz software for quick and easy measuring wherever you are. SpectraWiz software is versatile, allowing for accurately measuring and displaying wavelength emissions, reflectance, transmission, absorption, concentrations and absolute intensities.

The images below, taken from the SpectraWiz software supplied, show some of the many applications for the Redshift NIR mini spectrometer including lab based analysis of low level signal detection, absorbance spectrums alongside diode light emittance and thin film scanning.

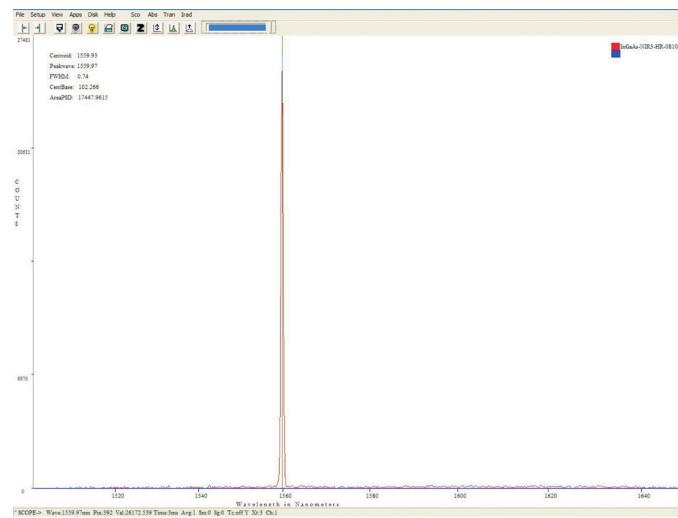
Optoelectronics



In addition to our Redshift NIR I mini spectrometer, Knight Optical also supply a range of mini spectrometer models and accessories for alternative applications, please click on the "see also" tab below, alternatively speak to our experienced, technical sales team to discover how Knight Optical's range of high quality mini-spectrometers can improve your spectral analysis capabilities and experience.



Redshift NIR InGaAs mini spectrometer showing spectra of amino acids.



Redshift NIR-HR 1024 InGaAs mini spectrometer for the WDM band showing a laser line with FWHM of 0.7mm.

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