

SpectraPro 2000 Series Monochromators and Spectrographs



The PI/Acton SpectraPro 2000 Series imaging spectrographs and monochromators represent the latest advance in the industry-standard SpectraPro family. The SpectraPro is already recognized throughout the scientific community as the highest-quality direct-digital scanning instrument available. The updated electronics take the SpectraPro 2000 Series to new levels with the addition of a USB interface, on-board filter wheel driver, and a USB 2.0 hub to run your other hardware, such as a CCD camera. These features enhance the SpectraPro's status as the benchmark for rugged, high-performance operation and versatility. Every SpectraPro features original, polished optics with aspheric mirrors for the best imaging performance. These optics provide high-accuracy, low-scatter performance with minimum stray light.

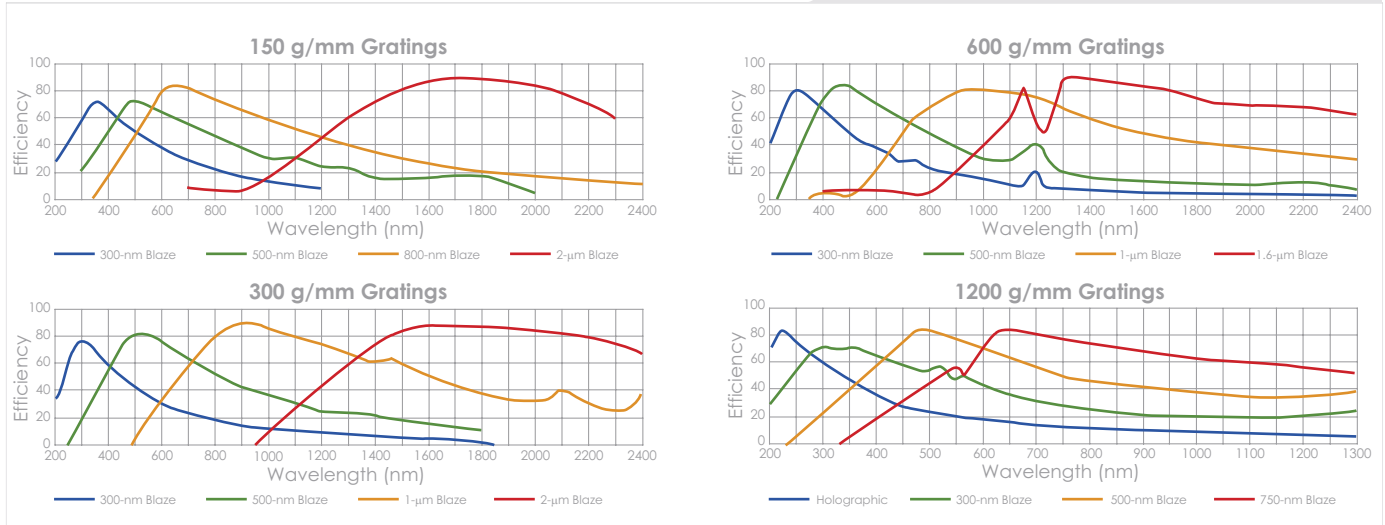
**Applications:** Raman, LIBS, Transmission / Reflection / Absorption, Tunable Light Source

Features	Specifications
Higher throughput	Minimizes the amount of light lost with the use of larger gratings and highly reflective coatings
Posittrak™ grating stabilization	Quickly change gratings that accurately centers on your desired wavelength
Multiple port configurations	Utilize more than one light source or capture your data with a combination of CCD(s) and/or PMT detection
Image corrected optics	Offers the best spatial resolution for multi-stripe spectroscopy
High efficiency optical coatings	ARC #2000 Al + MgF2 coatings deliver the highest throughput in the industry, guaranteeing 88 - 90% reflectance at 200 nm
Manual or motorized slits	Provides the user the choice of either high accuracy slit mechanism
Renowned WinSpec and SpectraSense software	Offers easy, yet sophisticated Windows® GUI controls Automates data acquisition, analysis and display
Scientific Toolkit for LabVIEW™	Respected application program interface provides a universal interface to all PI / Acton hardware
Wide range of accessories available	Including fiber adapters, filter wheels, sample chambers, and light sources

SpectraPro Specifications (with 1200 g/mm grating)

	SpectraPro 2150i	SpectraPro 2300i	SpectraPro 2500i	SpectraPro 2750
<b>Focal length</b>	150 mm	300 mm	500 mm	750 mm
<b>Aperture ratio</b>	f/4.0	f/3.9	f/6.5	f/9.8
<b>Scan Range</b>	0-1400 nm mechanical range	0-1400 nm mechanical range	0-1400 nm mechanical range	0-1400 nm mechanical range
<b>Linear Dispersion</b> (@ 435.833 nm)	4.17 nm/mm	2.38 nm/mm	1.52 nm/mm	1.02 nm/mm
<b>CCD Resolution</b> (20µm pixel, 20µm slit width)	0.25 nm	0.14 nm	0.09 nm	0.06 nm
<b>PMT Resolution</b> (10µm slit width)	0.125 nm	0.07 nm	0.045 nm	0.03 nm
<b>Wavelength coverage</b> (across 26.8 mm CCD)	111 nm	64 nm	41 nm	27 nm
<b>Grating size</b>	32 x 32 mm	68 x 68mm 68 x 84 mm (optional)	68 x 68mm 68 x 84 mm (optional)	68 x 68mm
<b>Grating mount</b>	Dual grating turret	Triple grating turret	Triple grating turret	Triple grating turret
<b>Grating turrets</b>	Interchangeable (standard)	Interchangeable (optional)	Interchangeable (optional)	Interchangeable (standard)
<b>Focal plane size</b> (front exit port)	25mm wide x 10mm high	27mm wide x 14mm high	27mm wide x 14mm high	25mm wide x 14mm high
<b>Standard manual slits</b> (micrometer adjustable)	10µm to 3mm motorized (optional)	10µm to 3mm motorized (optional)	10µm to 3mm motorized (optional)	10µm to 3mm motorized (optional)
<b>Accuracy</b>	± 0.25 nm	± 0.2 nm	± 0.2 nm	± 0.1 nm
<b>Repeatability</b>	± 0.05 nm	± 0.05 nm	± 0.05 nm	± 0.05 nm
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<b>Drive step size</b>	0.005 nm	0.005 nm	0.005 nm	0.005 nm
<b>Size</b>	7 in (178 mm) long 7 in (178 mm) wide 6.5 in (165 mm) high	13.2 in (337 mm) long 10 in (254 mm) wide 8 in (203 mm) high	21 in (534 mm) long 11 in (280 mm) wide 8 in (203 mm) high	30 in (762 mm) long 11 in (280 mm) wide 8 in (203 mm) high
<b>Optical axis height</b>	4 in (102 mm)	4.875 in (124 mm)	4.875 in (124 mm)	4.875 in (124 mm)
<b>Weight</b>	10 lb (4.5 kg)	35 lb (15.9 kg)	40 lb (18 kg)	45 lb (20.5 kg)
<b>Computer interface</b>	USB and RS232	USB and RS232	USB and RS232	USB and RS232

## Grating Curves



## Dispersion and Wavelength Coverage (26.8mm focal plane)\*

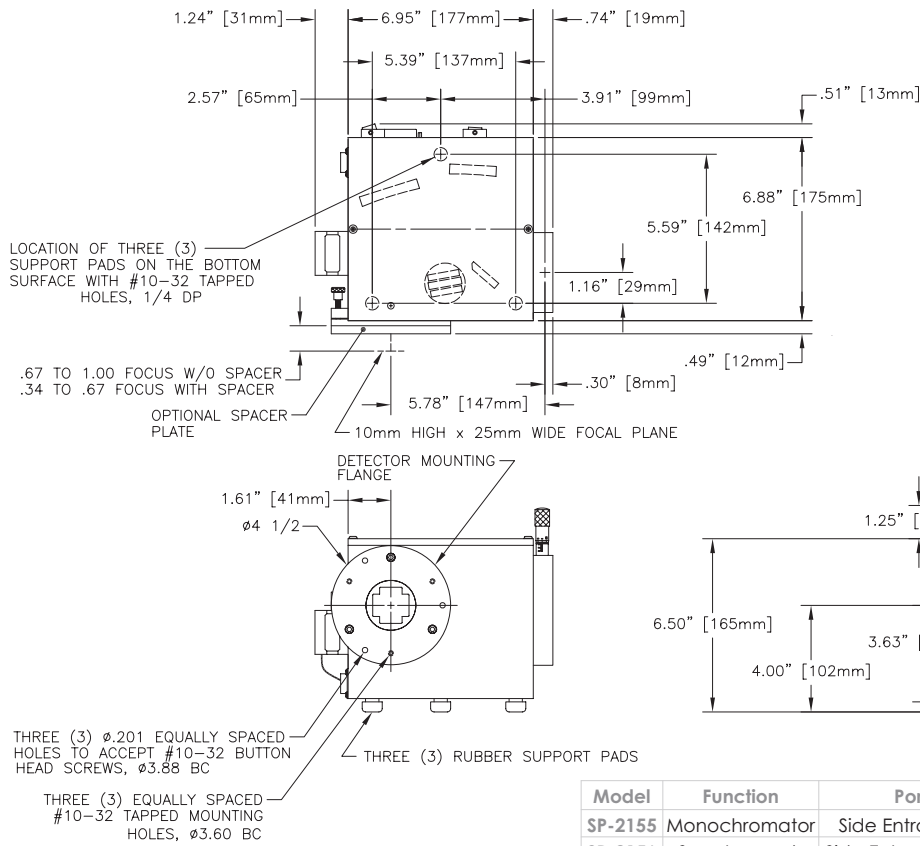
Model	150 g/mm	300 g/mm	600 g/mm	1200 g/mm	1800 g/mm	2400 g/mm	3600 g/mm
SP-2150i	40 nm/mm 1061 nm	19 nm/mm 519 nm	9 nm/mm 246 nm	4 nm/mm 107 nm	2.2 nm/mm 58 nm	1.1 nm/mm 30 nm	0.4nm/mm 11 nm
SP-2300i	21 nm/mm 568 nm	11 nm/mm 281 nm	5 nm/mm 136 nm	2.3 nm/mm 62 nm	1.4 nm/mm 36 nm	0.8 nm/mm 22 nm	0.7nm/mm 20 nm
SP-2500i	13 nm/mm 346 nm	6.4 nm/mm 171 nm	3.1 nm/mm 83 nm	1.4 nm/mm 39 nm	0.9 nm/mm 23 nm	0.5 nm/mm 14 nm	0.46 nm/mm 12 nm
SP-2750	8.8 nm/mm 235 nm	4.4 nm/mm 117 nm	2.1 nm/mm 57 nm	1 nm/mm 27 nm	0.6 nm/mm 17 nm	0.4 nm/mm 11 nm	0.3 nm/mm 9 nm

\* All specifications are nominal

## Grating Blaze Table

Blaze Wavelength	Optimum Range of Operation	Standard Groove Densities (g/mm)
240 nm	185 nm to 375 nm	2400, 3600
Holographic UV (HUV)	185 nm to 375 nm	1200, 1800, 2400, 3600
300 nm	200 nm to 450 nm	150, 300, 600, 1200
500 nm	335 nm to 750 nm	150, 300, 600, 1200
Holographic Visible (HVIS)	300 nm to 800 nm	1200, 2400
750nm	500 nm to 1.1 μm	300, 600, 1200
800 nm	535 nm to 1.2 μm	150
1 μm	650 nm to 1.5 μm	300, 600
1.25 μm	835 nm to 1.9 μm	150, 300, 600
1.6 μm	1 μm to 2.4 μm	600
2 μm	1.3 μm to 3 μm	300
4 μm	2.6 μm to 6 μm	150
8 μm	5.3 μm to 12 μm	75

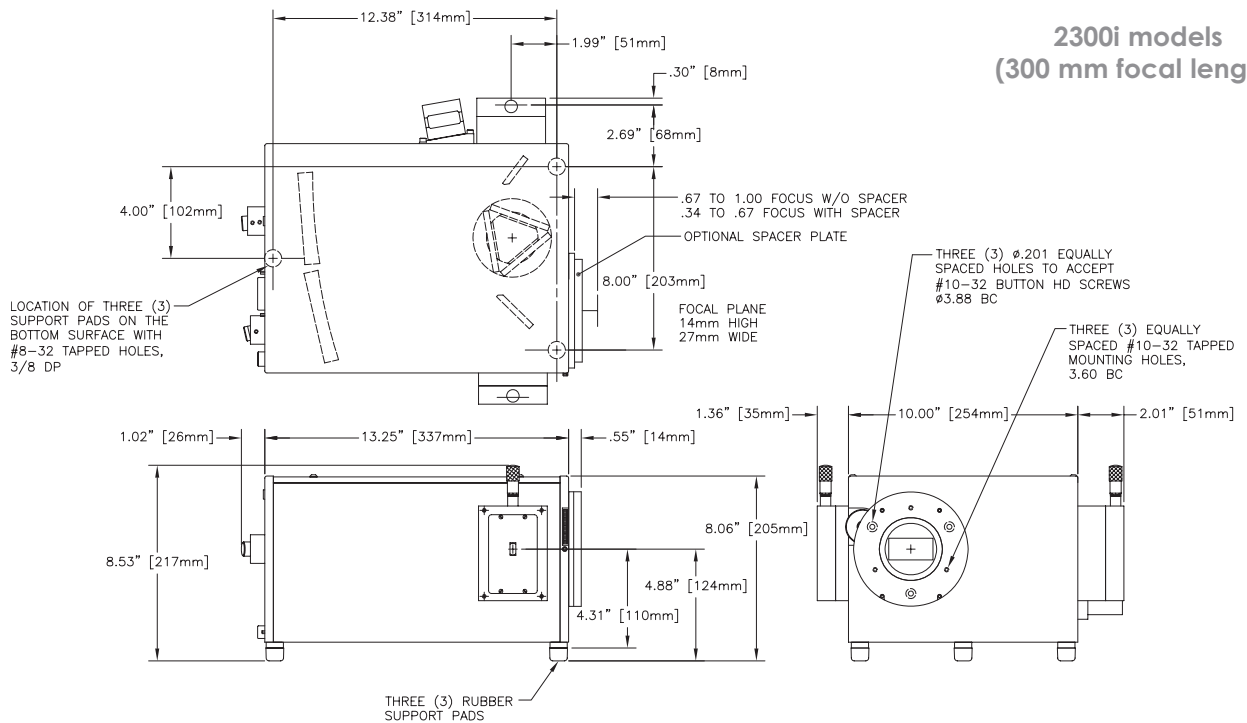
**2150i models  
(150 mm focal length)**



Model	Function	Port configuration	Optical path
SP-2155	Monochromator	Side Entrance Slit/Front Exit Slit	90°
SP-2156	Spectrograph	Side Entrance Slit/Front CCD Port	90°

Optional Motorized entrance slit available

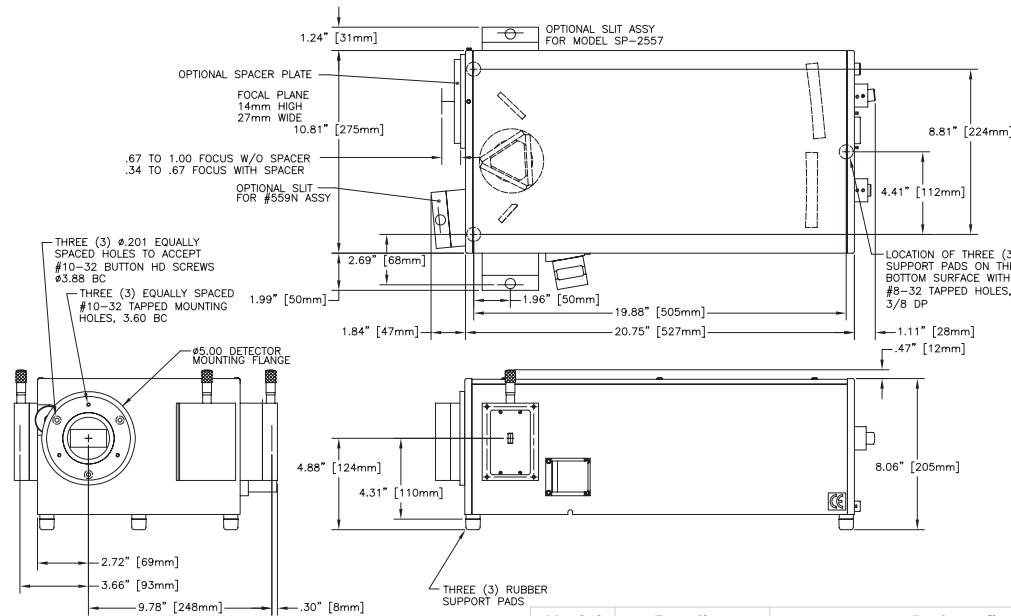
**2300i models  
(300 mm focal length)**



Model	Function	Port configuration	Optical path
SP-2355	Monochromator	Side Entrance Slit/Front Exit Slit	90°
SP-2356	Spectrograph	Side Entrance Slit/Front CCD Port	90°
SP-2357	Monochromator	Side Entrance Slit/Front Exit Slit/Side Exit Slit	90° and 180°
SP-2358	Spectrograph	Side Entrance Slit/Front CCD Port/Side Exit Slit	90° and 180°
SP-2360	Spectrograph	Side Entrance Slit/Front CCD Port/Side CCD Port	90° and 180°

Optional Motorized entrance slit available

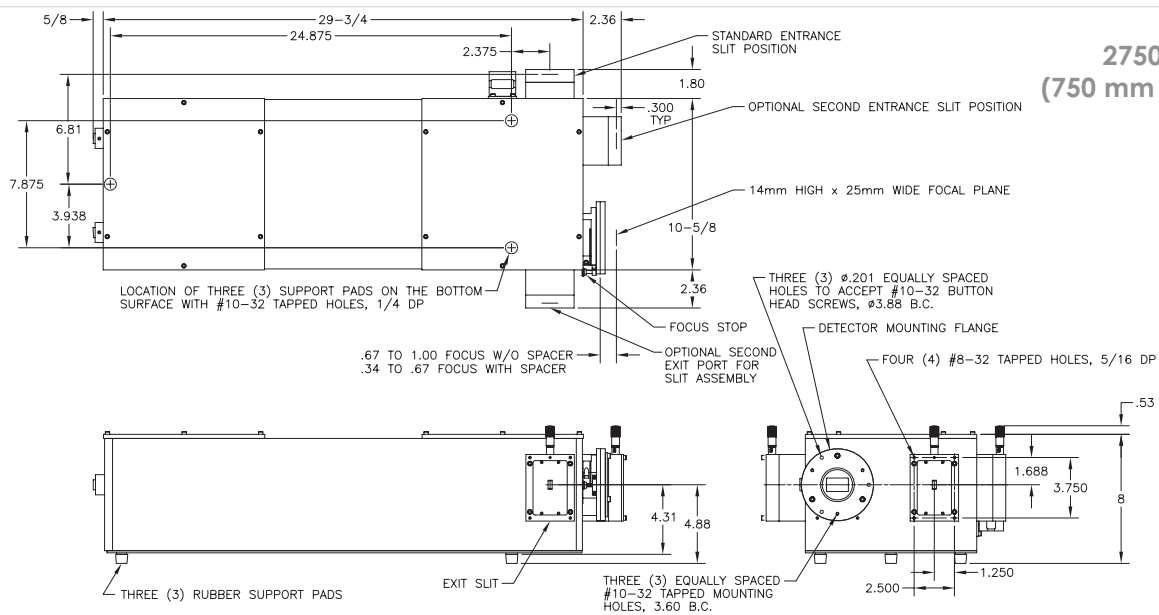
### 2500i models (500 mm focal length)



Model	Function	Port configuration	Optical path
SP-2555	Monochromator	Side Entrance Slit/Front Exit Slit	90°
SP-2556	Spectrograph	Side Entrance Slit/Front CCD Port	90°
SP-2557	Monochromator	Side Entrance Slit/Front Exit Slit/Side Exit Slit	90° and 180°
SP-2558	Spectrograph	Side Entrance Slit/Front CCD Port/Side Exit Slit	90° and 180°
SP-2560	Spectrograph	Side Entrance Slit/Front CCD Port/Side CCD Port	90° and 180°

Optional Motorized entrance slit available  
Optional Front Entrance Slit available

### 2750 models (750 mm focal length)



Model	Function	Port configuration	Optical path
SP-2755	Monochromator	Side Entrance Slit/Front Exit Slit	90°
SP-2756	Spectrograph	Side Entrance Slit/Front CCD Port	90°
SP-2757	Monochromator	Side Entrance Slit/Front Exit Slit/Side Exit Slit	90° and 180°
SP-2758	Spectrograph	Side Entrance Slit/Front CCD Port/Side Exit Slit	90° and 180°
SP-2760	Spectrograph	Side Entrance Slit/Front CCD Port/Side CCD Port	90° and 180°

Optional Motorized entrance slit available  
Optional Front Entrance Slit available

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