



## Acton Series Monochromators and Spectrographs

The Acton Series of imaging spectrographs and monochromators from Princeton Instruments are the industry standard for researchers who demand the highest quality data. Acton monochromators and spectrographs feature a rugged yet flexible design that can be configured for a wide range of applications.

FEATURE	BENEFITS
Positrak™ grating stabilization	Quickly change gratings to accurately center on your desired wavelength
Image corrected optics	Offers the best spatial resolution for multi-stripe spectroscopy. Toroidal mirrors provide excellent imaging quality and enhanced spatial and spectral resolution.
High efficiency optical coatings	Acton #1900 Al + MgF <sub>2</sub> coating delivers the highest throughput in the industry, guaranteeing 85% reflectance from 200 - 700 nm. Optional protected silver, gold or dielectric coatings are available. See page 4.
Multiple entrance and exit ports	Can accommodate multiple detectors and experiments
Accessories	Including fiber adapters, filter wheels, sample chambers, shutters and light sources
Available in four focal lengths	150 mm, 300 mm, 500 mm and 750 mm to meet a variety of resolution requirements
<b>Optional</b> WinSpec, SpectraSense or LightField software	Complete data acquisition software for both CCD and single point detectors
<b>Optional</b> Scientific Toolkit (SITK)™ for LabVIEW®	Expert tool kit for programming Labview to control Acton Series spectrometers

### Exit Configurations - Acton Series

SP 2X55 - SP2X60 Models	Exit Configurations
SP 2X55	Front exit slit
SP 2X56	Front exit camera port
SP 2X57 *	Front and side exit slits
SP 2X58 *	Front exit camera port and side exit slit
SP 2X60 * †	Front and side exit camera ports



Powered by  
LightField®

\* These models not available in 150 mm focal length.

† SP 2X60 side exit slit focal plane width is limited to 19 mm.

### Applications:

Raman, LIBS, Transmission, Reflectance,  
Luminescence, Absorption

## Acton Series Specifications

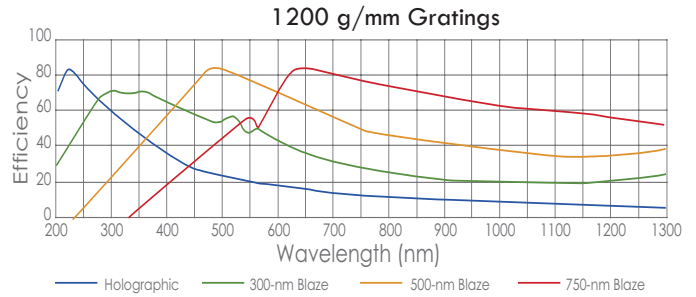
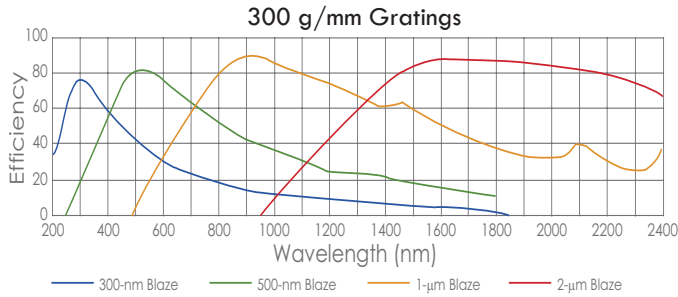
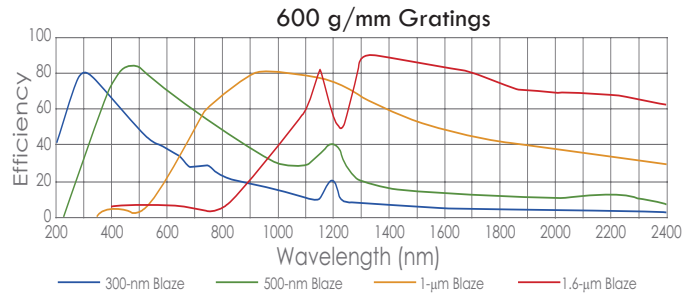
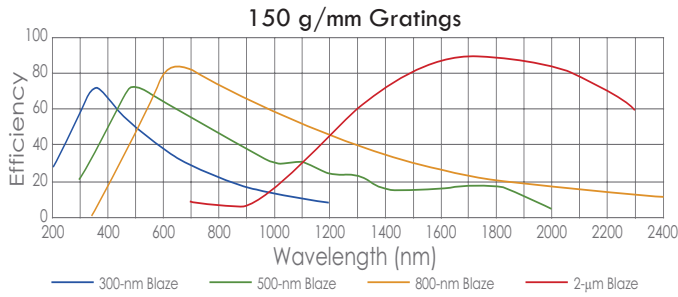
	SP2150	SP2300	SP2500	SP2750
<b>Focal length</b>	150 mm	300 mm	500 mm	750 mm
<b>Aperture ratio</b>	f/4.0	f/3.9	f/6.5	f/9.7
<b>Scan range</b> (with 1200 G/mm grating)	0 - 1400 nm mechanical range	0 - 1400 nm mechanical range	0 - 1400 nm mechanical range	0 - 1400 nm mechanical range
<b>Linear dispersion *</b> (@ 435.833 nm)	4.17 nm/mm	2.38 nm/mm	1.52 nm/mm	1.03 nm/mm
<b>CCD resolution **</b> (20 μm pixel, 20 μm slit width)	0.4 nm	0.14 nm	0.09 nm	0.06 nm
<b>PMT resolution *</b> (10 μm slit width)	0.4 nm	0.1 nm	0.05 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 68 mm 68 x 84 (optional)	68 x 68 mm 68 x 84 (optional)	68 x 68 mm
<b>Grating mount</b>	Interchangeable dual grating turret	Interchangeable triple grating turret	Interchangeable triple grating turret	Interchangeable triple grating turret
<b>Focal plane size</b> (front exit port)	25 mm wide x 10 mm high	27 mm wide x 14 mm high	27 mm wide x 14 mm high	25 mm wide x 14 mm high
<b>Astigmatism</b> (at focal plane edges)	690 μm	720 μm	250 - 300 μm	150 - 175 μm
<b>Standard Series manual slits</b> (micrometer adjustable)	10 μm to 3mm manual	10 μm to 3mm manual	10 μm to 3mm manual	10 μm to 3mm manual
<b>Wavelength 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
<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 lbs (4.5 kg)	35 lbs (15.9 kg)	40 lbs (18 kg)	45 lbs (20.5 kg)
<b>Computer interface</b>	USB and RS232	USB and RS232	USB and RS232	USB and RS232

\* Linear dispersion measured with a 1200 g/mm grating @ 435.8 nm.

PMT resolution measured with a 1200 g/mm grating @ 435.8 nm, 10 μm slit width and 4 mm slit height.

\*\* CCD resolution measured with a 1200 g/mm grating @ 435.8 nm, 20 μm slit width and 20 μm pixel.

## Grating Curves



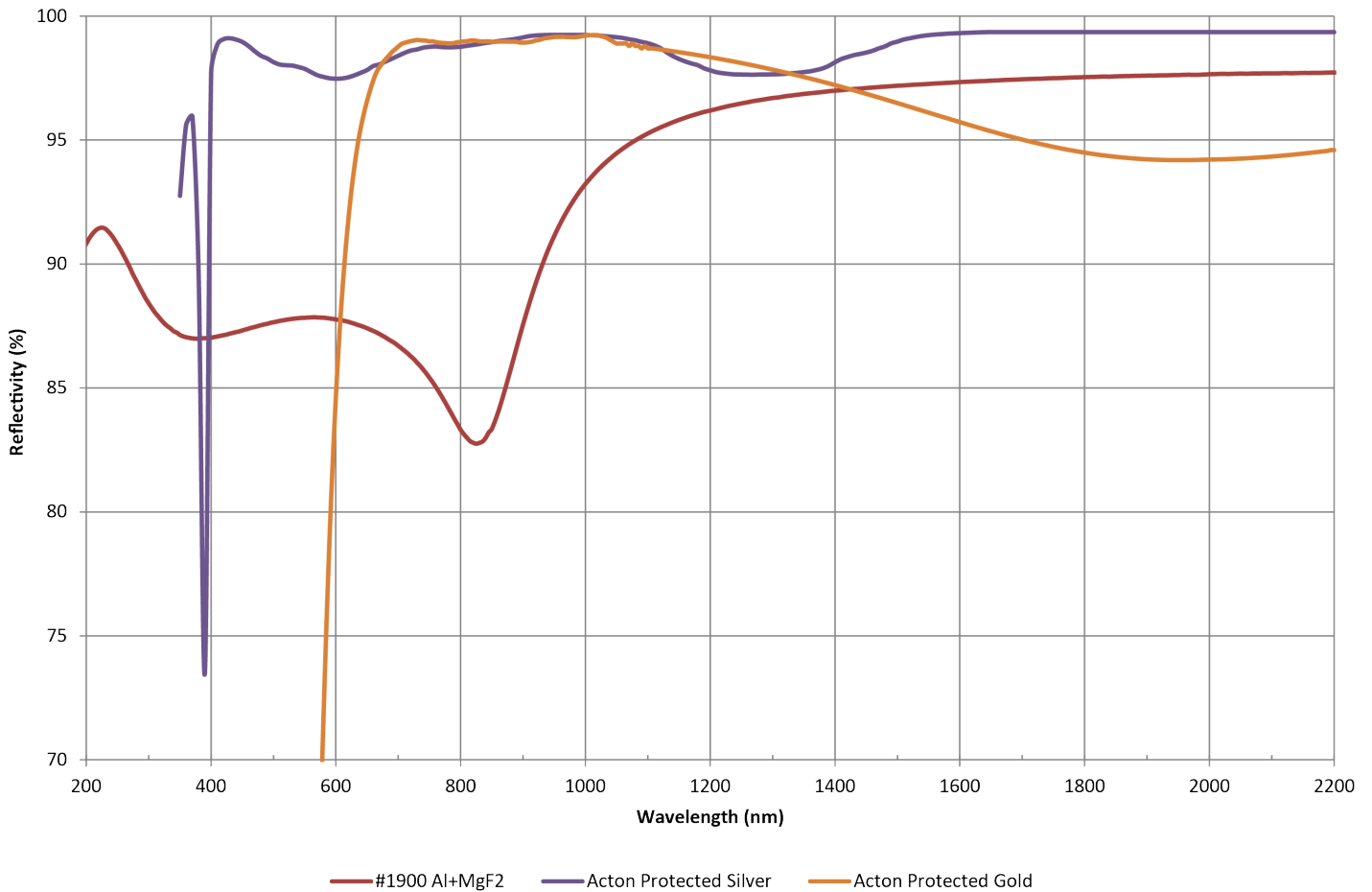
## Dispersion and Wavelength Coverage (26.8 mm focal plane)

Model	150 g/mm	300 g/mm	600 g/mm	1200 g/mm	1800 g/mm	2400 g/mm	3600 g/mm*
<b>SP-2150i</b>	39.7 nm/mm 1064 nm	19.5 nm/mm 522 nm	9.33 nm/mm 250 nm	4.17 nm/mm 111 nm	2.37 nm/mm 63 nm	1.4 nm/mm 37 nm	1.07 nm/mm 28.6 nm
<b>SP-2300i</b>	21.2 nm/mm 569 nm	10.5 nm/mm 281 nm	5.12 nm/mm 137 nm	2.38 nm/mm 64 nm	1.44 nm/mm 38 nm	0.93 nm/mm 25 nm	0.67 nm/mm 18 nm
<b>SP-2500i</b>	13.1 nm/mm 351 nm	6.5 nm/mm 174 nm	3.2 nm/mm 85 nm	1.52 nm/mm 41 nm	0.94 nm/mm 25 nm	0.63 nm/mm 17 nm	0.45 nm/mm 12 nm
<b>SP-2750</b>	8.8 nm/mm 235 nm	4.37 nm/mm 117 nm	2.16 nm/mm 57 nm	1.03 nm/mm 27 nm	0.64 nm/mm 17 nm	0.44 nm/mm 11.7 nm	0.31 nm/mm 8.2 nm

\* Center wavelength of 253.65 nm used with 3600 g/mm grating. Center wavelength of 435.8 nm used with all other gratings.

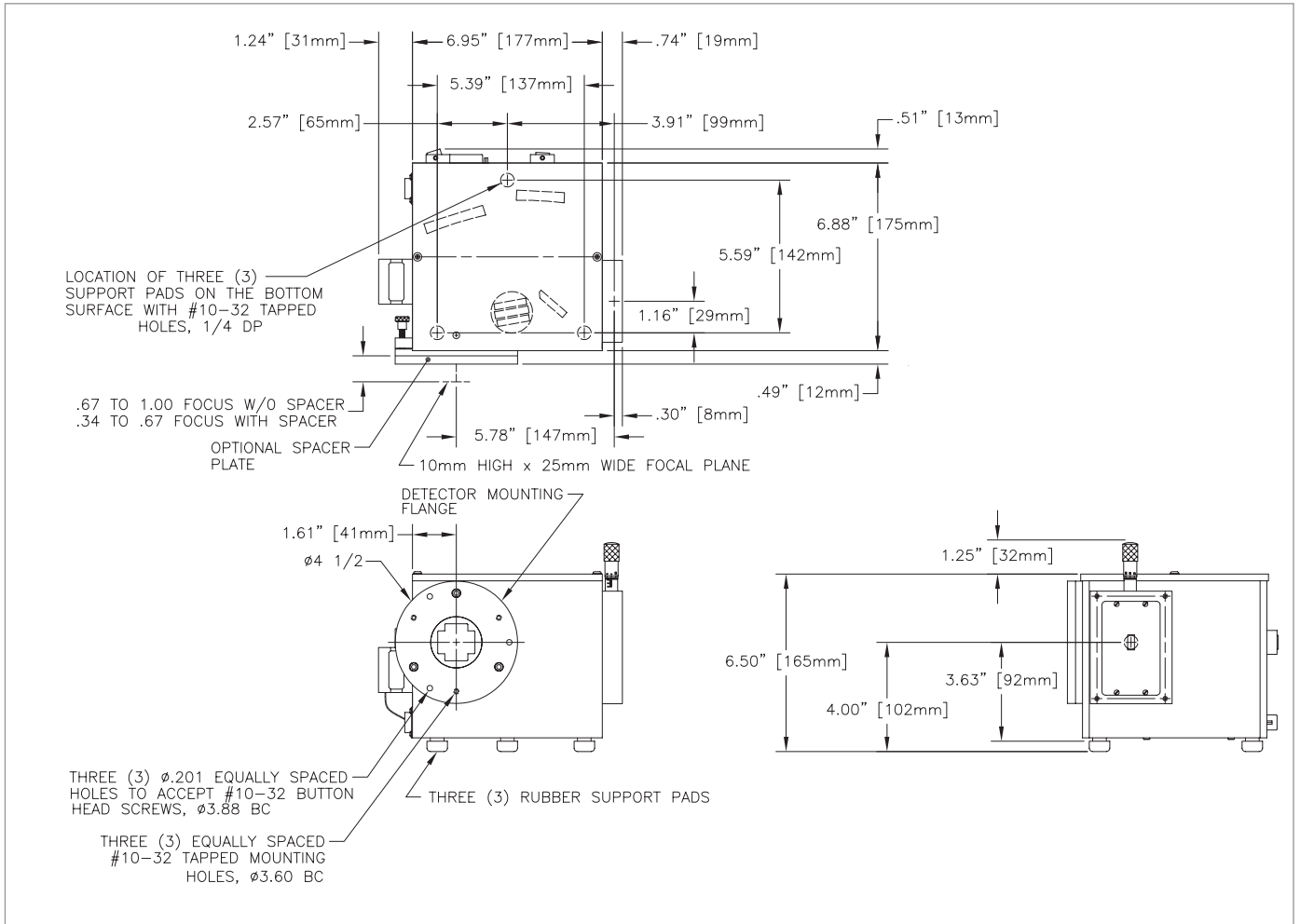
## Mirror Coatings: Reflectance Curves

### Acton Optics & Coatings Protected Al and Broadband Metallic Coatings



NOTE: #1900 coating is standard on SpectraPro mirrors. Gold and silver coatings are offered as an option at an additional fee.

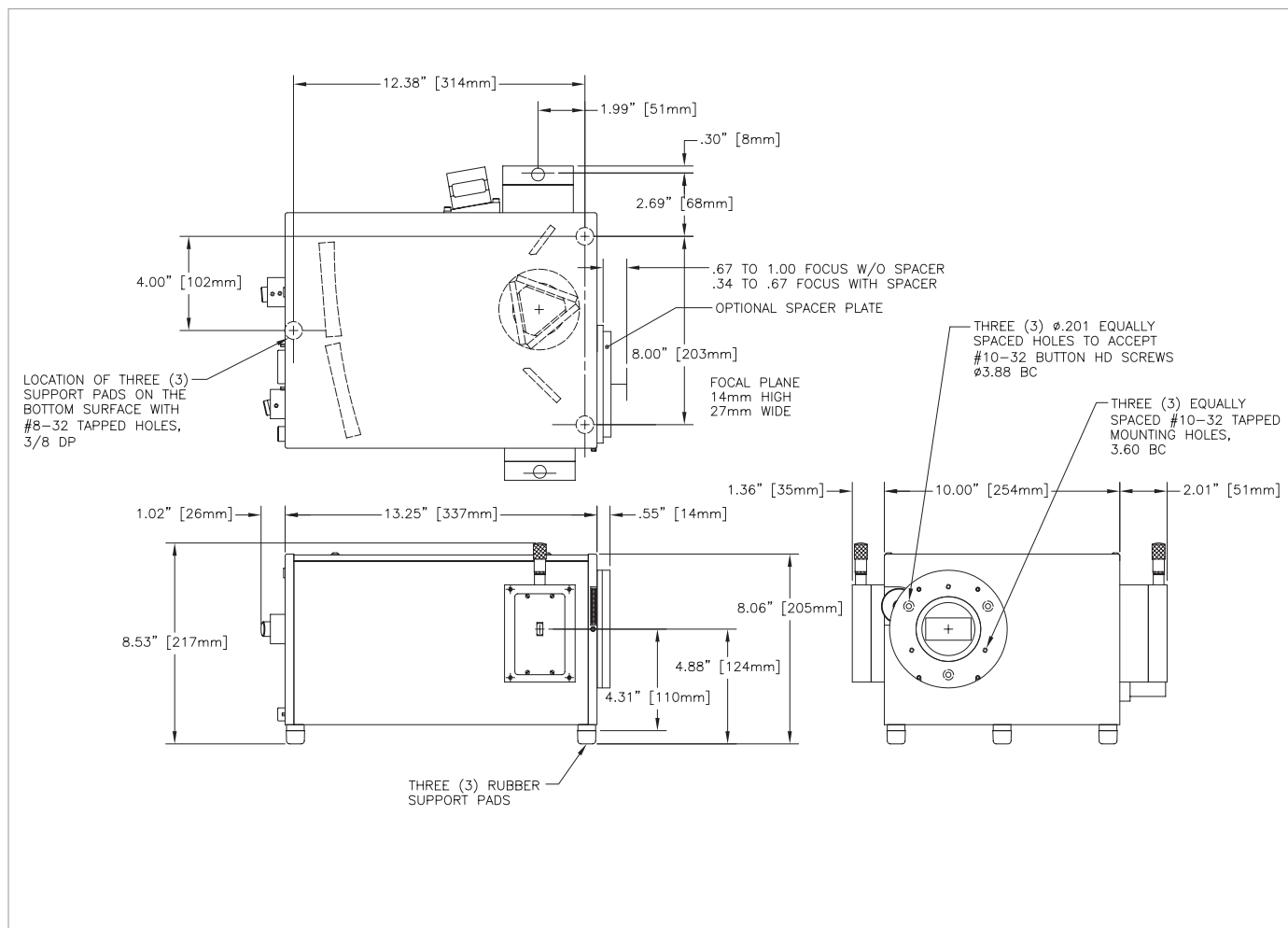
## 2150i Models (150 mm focal length)



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 slits are available. Contact your sales rep for more information.

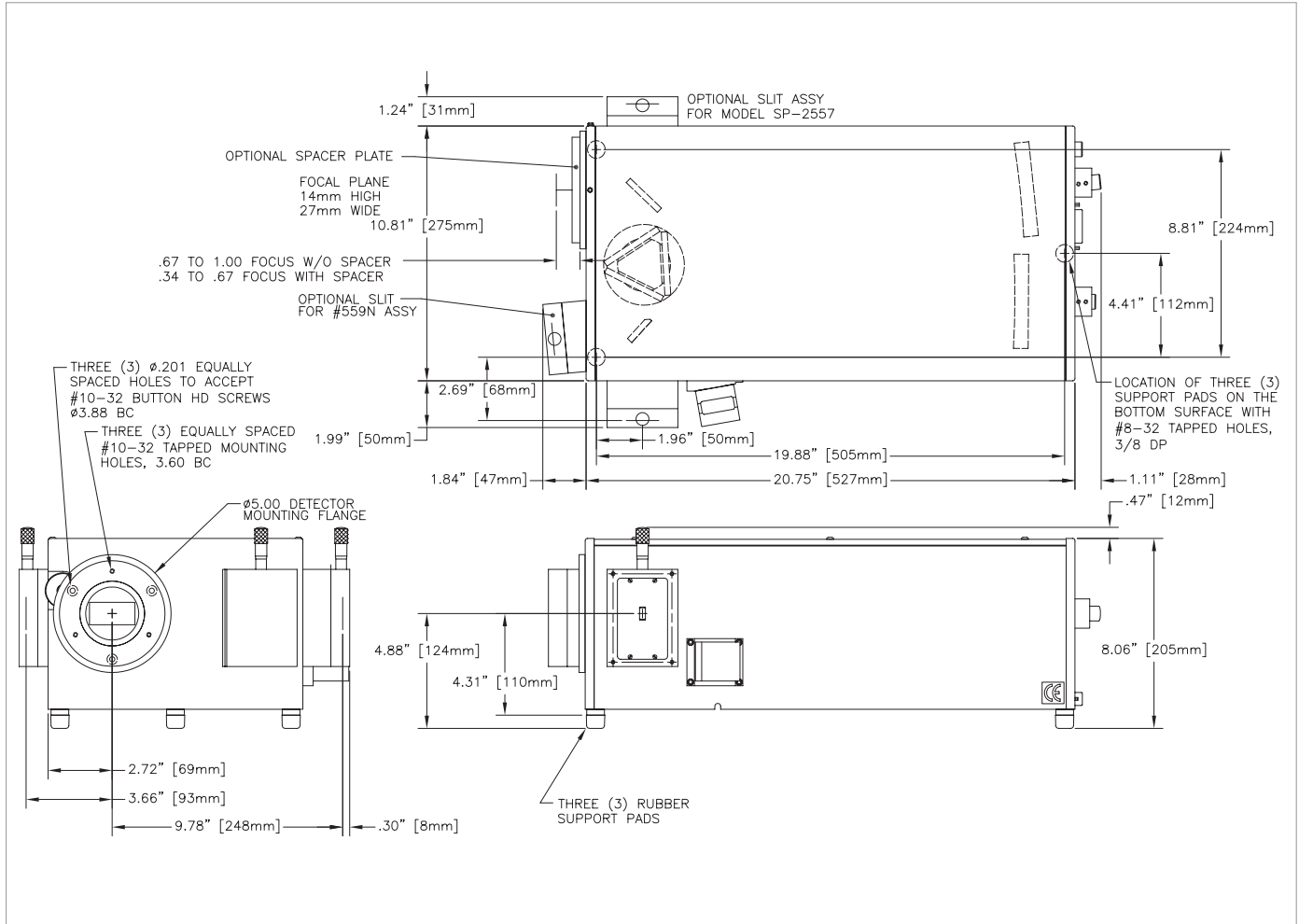
## 2300i Models (300 mm focal length)



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 slits are available. Contact your sales rep for more information.

## 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 slits are available. Optional front entrance is available. Contact your sales rep for more information.

