



Acton Standard Series of Monochromators and Spectrographs

The Acton Standard 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 ₂ coating delivers the highest throughput in the industry, guaranteeing 85% reflectance from 200 - 700 nm. Optional protected silver, gold or dielectric coatings are available |
| 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 |
| Optional WinSpec, SpectraSense or LightField software | Complete data acquisition software for both CCD and single point detectors |
| Scientific Toolkit (SITK)™ for LabVIEW® | Expert tool kit for programming Labview to control Acton Series spectrometers |

Exit Configurations - Acton Standard 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 |



Now 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 Standard Series Specifications

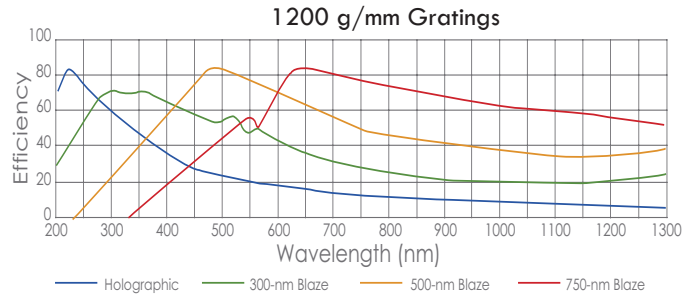
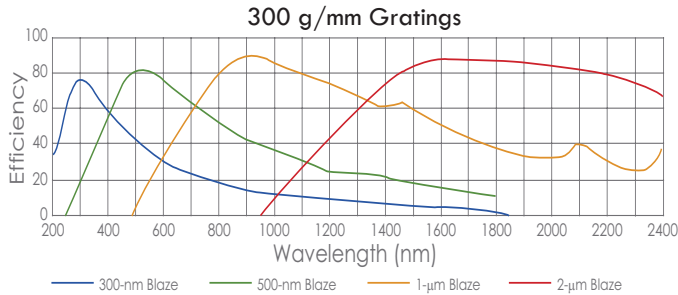
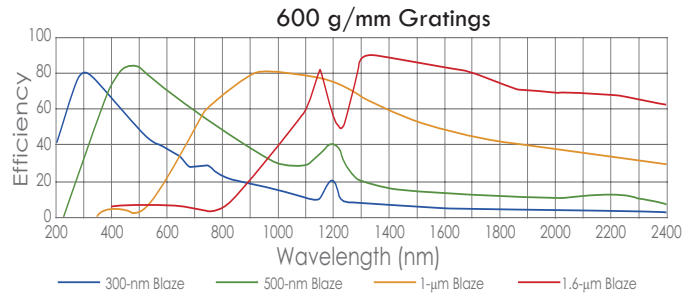
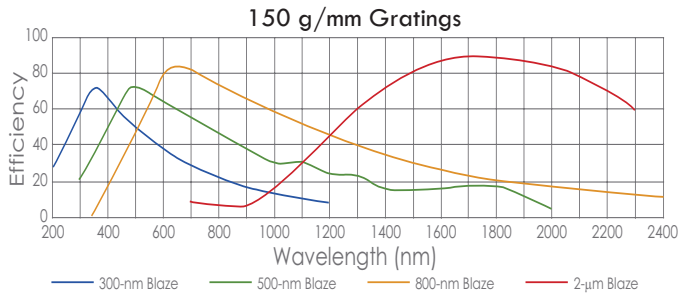
| | SP2150 | SP2300 | SP2500 | SP2750 |
|--|--|--|--|--|
| Focal length | 150 mm | 300 mm | 500 mm | 750 mm |
| Aperture ratio | f/4.0 | f/3.9 | f/6.5 | f/9.7 |
| Scan range (with 1200 G/mm grating) | 0 - 1400 nm mechanical range | 0 - 1400 nm mechanical range | 0 - 1400 nm mechanical range | 0 - 1400 nm mechanical range |
| Linear dispersion * (@ 435.833 nm) | 4.17 nm/mm | 2.38 nm/mm | 1.52 nm/mm | 1.03 nm/mm |
| CCD resolution ** (20 μm pixel, 20 μm slit width) | 0.4 nm | 0.14 nm | 0.09 nm | 0.06 nm |
| PMT resolution * (10 μm slit width) | 0.4 nm | 0.1 nm | 0.05 nm | 0.03 nm |
| Wavelength coverage (across 26.8 mm CCD) | 111 nm | 64 nm | 41 nm | 27 nm |
| Grating size | 32 x 32 mm | 68 x 68 mm 68 x 84 (optional) | 68 x 68 mm 68 x 84 (optional) | 68 x 68 mm |
| Grating mount | Interchangeable dual grating turret | Interchangeable triple grating turret | Interchangeable triple grating turret | Interchangeable triple grating turret |
| Focal plane size (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 |
| Astigmatism (at focal plane edges) | 690 μm | 720 μm | 250 - 300 μm | 150 - 175 μm |
| Standard Series manual slits (micrometer adjustable) | 10 μm to 3mm manual | 10 μm to 3mm manual | 10 μm to 3mm manual | 10 μm to 3mm manual |
| Wavelength accuracy | ± 0.25 nm | ± 0.2 nm | ± 0.2 nm | ± 0.1 nm |
| Repeatability | ± 0.05 nm | ± 0.05 nm | ± 0.05 nm | ± 0.05 nm |
| Drive step size | 0.005 nm | 0.005 nm | 0.005 nm | 0.005 nm |
| Size | 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 |
| Optical axis height | 4 in (102 mm) | 4.875 in (124 mm) | 4.875 in (124 mm) | 4.875 in (124 mm) |
| Weight | 10 lbs (4.5 kg) | 35 lbs (15.9 kg) | 40 lbs (18 kg) | 45 lbs (20.5 kg) |
| Computer interface | 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

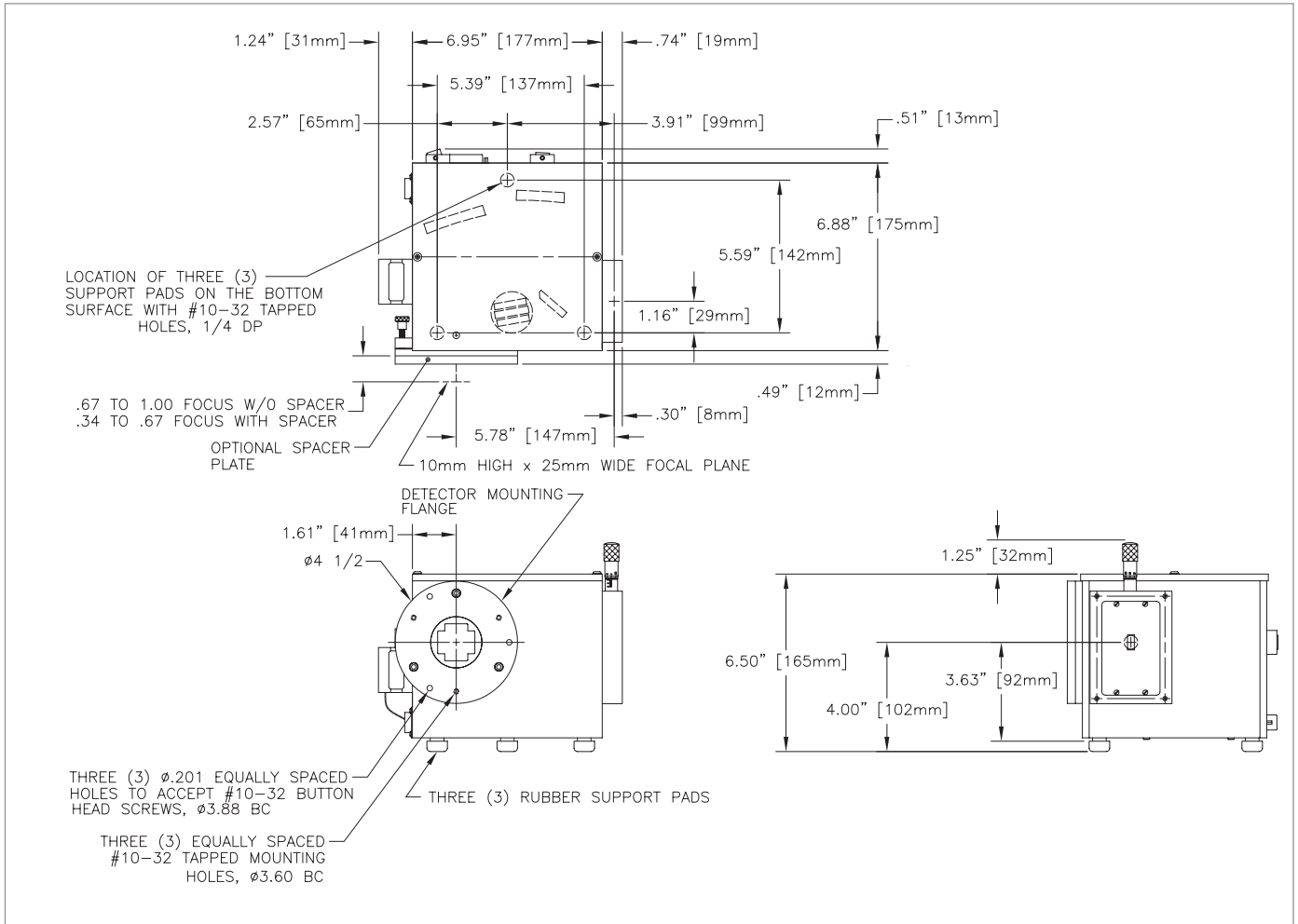


Dispersion and Wavelength Coverage (26.8 mm focal plane)

| Model | 150 g/mm | 300 g/mm | 600 g/mm | 1200 g/mm | 1800 g/mm | 2400 g/mm | 3600 g/mm* |
|-----------------|-----------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|-----------------------|
| SP-2150i | 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 |
| SP-2300i | 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 |
| SP-2500i | 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 |
| SP-2750 | 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.

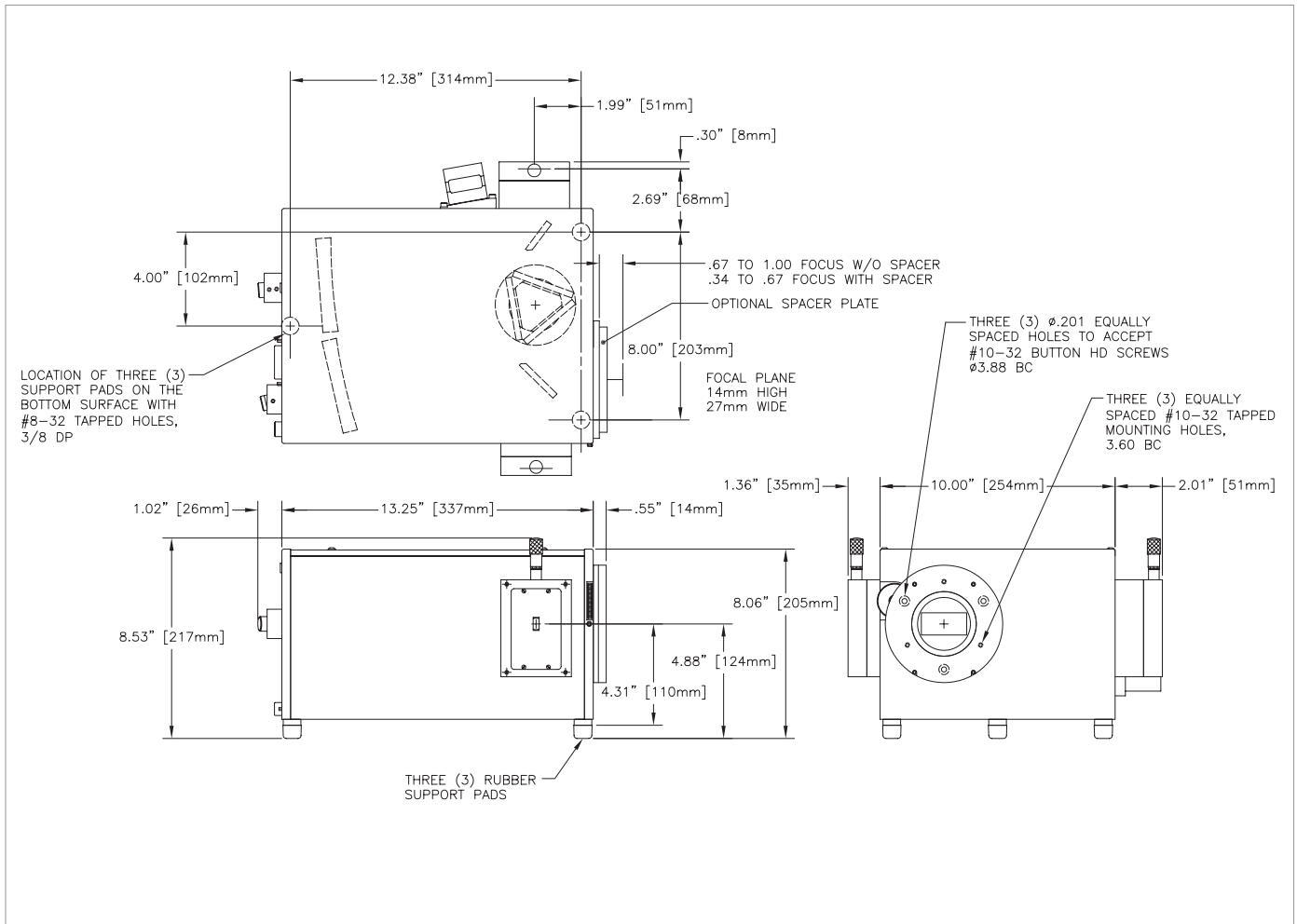
2150i Models (150 mm focal length)



| 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.

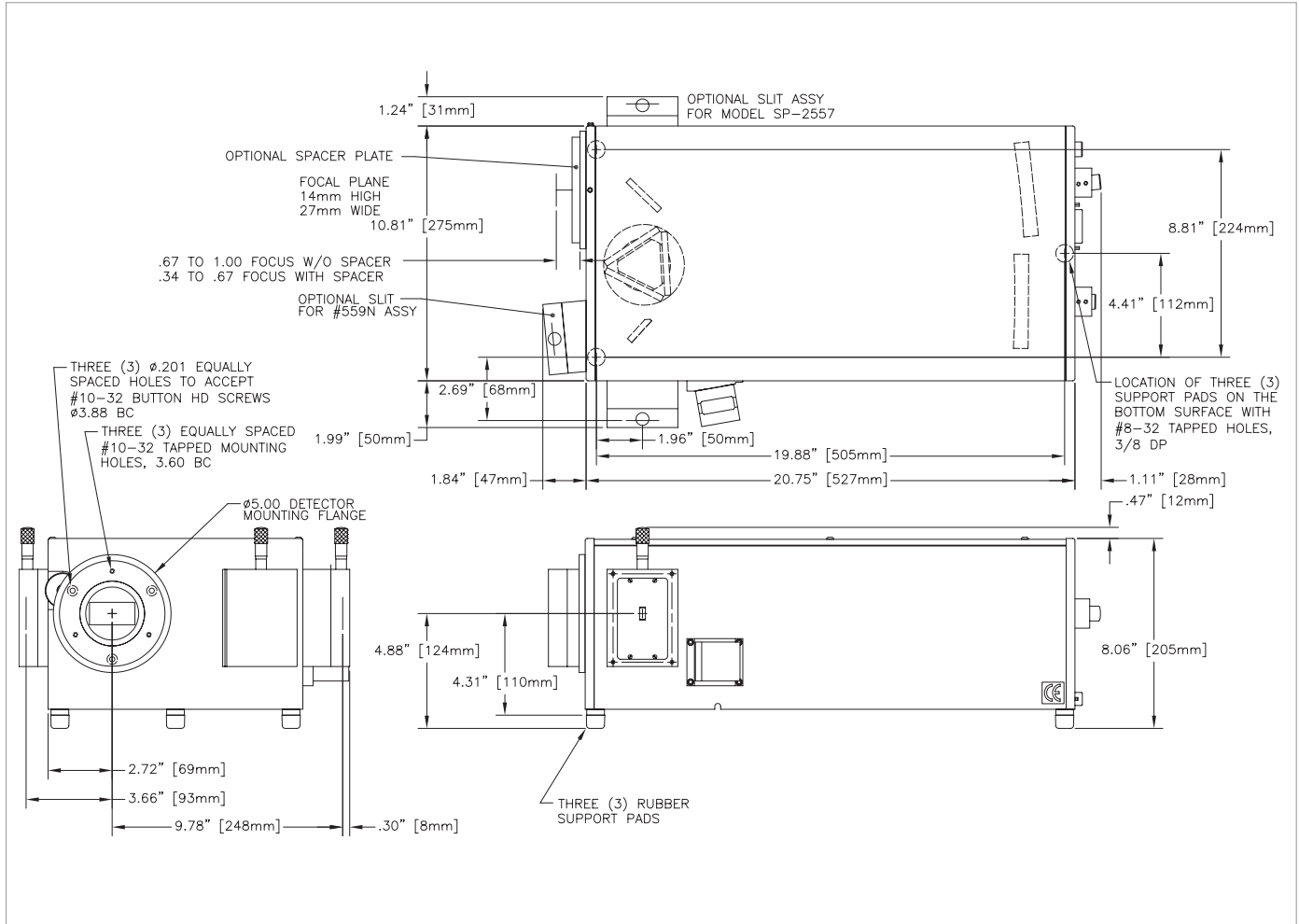
2300i Models (300 mm focal length)



| 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.

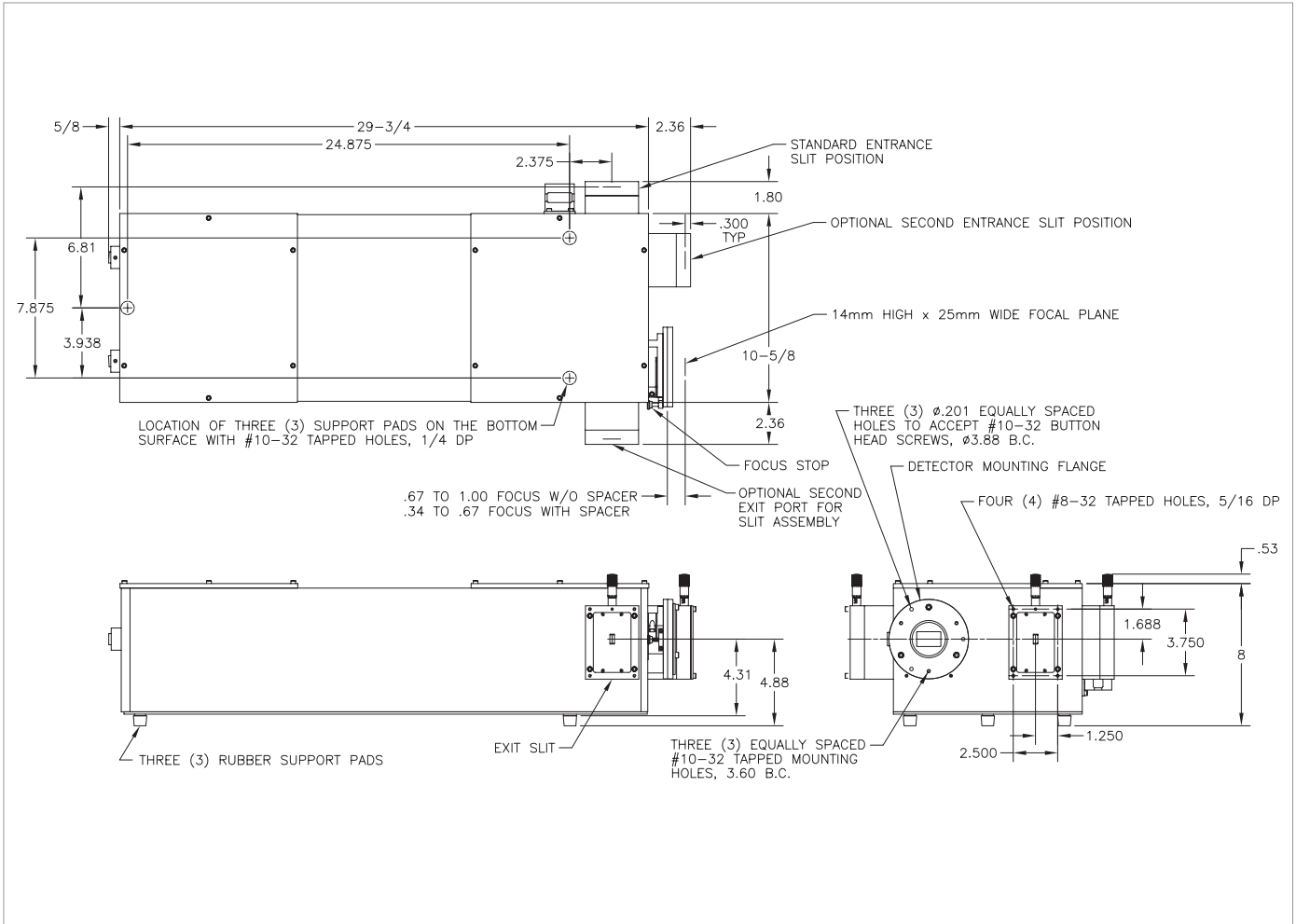
2500i Models (500 mm focal length)



| 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.

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