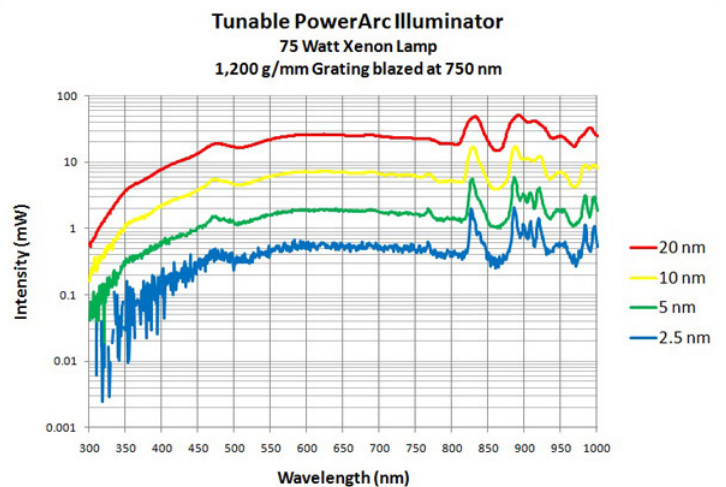
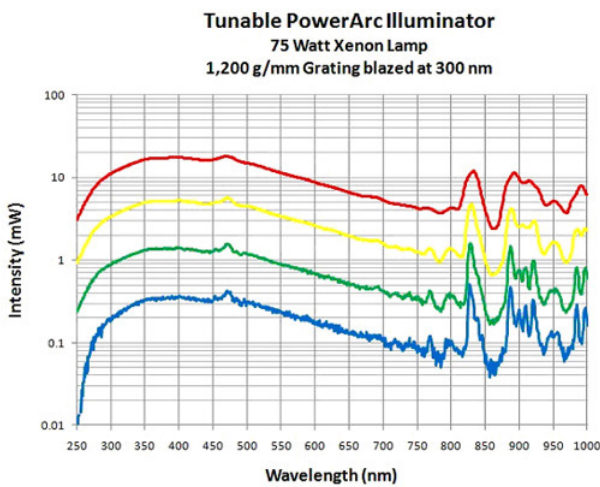


Tunable PowerArc™ Output Curves

You can customize a Tunable PowerArc™ Illuminator to suit your specific needs. The lamp and grating selected primarily determine the performance of the illuminator. However for any given lamp and grating the slit adjustment (or bandwidth) selected will also affect the intensity output of the unit.

Below are a series of intensity output curves for different configurations of the Tunable PowerArc™ Illuminators. There are far too many variables to provide output curves for all possible combinations for these illuminators. If you are interested in an illuminator with a different grating than those shown below, then you can compare the grating curves of that grating with one listed below to get a pretty good idea of how your particular illuminator will perform.



Physical Specifications

Dimensions (WxDxH)	31 x 12 x 9 inches
Weight	7.5 lbs

Optical Performance Specifications

Optical Power	> 300 m W (grating, bandpass & wavelength dependent)
Spot Size at Slit Exit	10 mm (slit dependent)
Diverging Beam angle (full)	14.4 degrees
Numerical Aperture (N.A.)	0.12
Optical Noise	0.07% RMS
Optical Stability	0.2%

75 Watt Switch Mode Power Supply Specifications

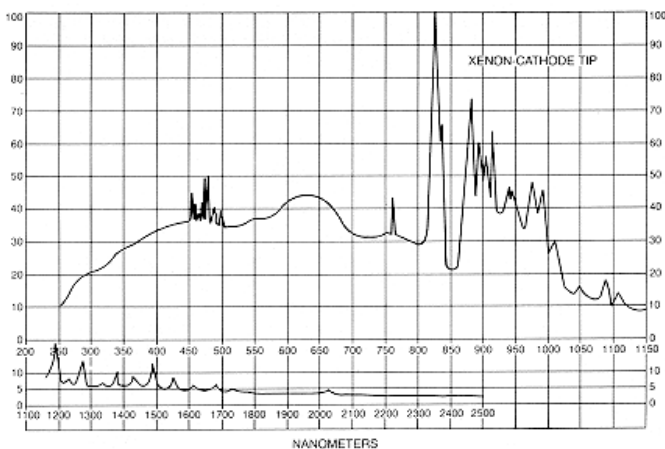
Input (user selectable)	90–274 V AC, 50–60 Hz
Power Rating	50 to 100 watts
Operating Voltage	10 to 25 volts
Operating Current	3 to 7 amps
Pre-Ignition Voltage	65–75 V DC
Ripple at Max Current	< 3% peak to peak
Stability After Warm-up	0.5%
Line Voltage Regulation	< 0.5% current variation for 5 volts line change

75 to 150 Watt Universal Power Supply Specifications

Input (user selectable)	105–120 V/60 Hz or 210–240 V/50 Hz
Power Rating	0 to 150 watts
Operating Voltage	10 to 24 volts
Operating Current	0 to 8 amps
Pre-Ignition Voltage	> 85 volts
Ripple at Max Current	< 10 millivolts
Stability After Warm-up	0.2%
Line Voltage Regulation	0.1% current variation for 5 volts line change
Load Regulation	0.1% current variation for 50% change in load impedance
Dimensions	4.5 x 10.75 x 12.5 inches, 11.5 x 27.3 x 31.8 cm
Weight	12 pounds, 5.45 kg

Arc Lamp Spectrum Band Pass Intensity Charts

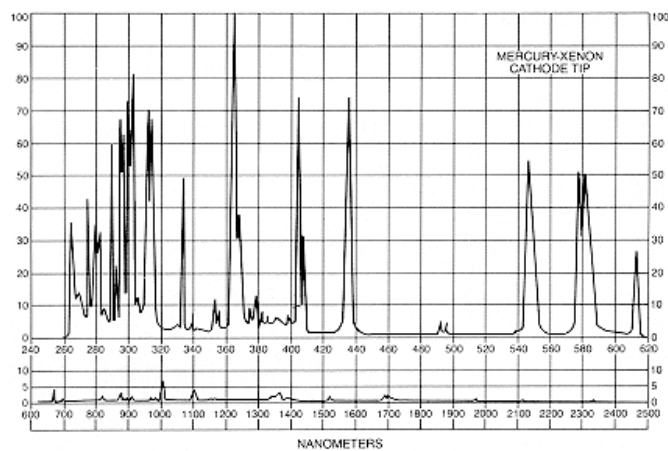
Xenon Arc Lamp Spectrum



Xenon Arc Lamp Intensity Chart

Wavelength	% output	Wavelength	% output	Wavelength	% output	Wavelength	% output
250-300	2.489	750-800	4.682	1250-1300	0.896	1750-1800	0.345
300-350	3.540	800-850	8.914	1300-1350	0.705	1800-1850	0.306
350-400	4.577	850-900	6.284	1350-1400	0.931	1850-1900	0.306
400-450	5.245	900-950	6.788	1400-1450	0.919	1900-1950	0.306
450-500	5.626	950-1000	5.848	1450-1500	1.118	1950-2000	0.268
500-550	5.214	1000-1050	2.871	1500-1550	0.701	2000-2050	0.345
550-600	5.729	1050-1100	1.953	1550-1600	0.513	2050-2100	0.230
600-650	6.472	1100-1150	1.402	1600-1650	0.515	2100-2150	0.230
650-700	5.649	1150-1200	1.593	1650-1700	0.552	2150-2200	0.230
700-750	4.862	1200-1250	0.846	1700-1750	0.428	TOTAL	100.000

Mercury/Xenon ArcLamp Spectrum



Mercury/Xenon Arc Lamp Intensity Chart

Wavelength	% output	Wavelength	% output	Wavelength	% output	Wavelength	% output
260-270	2.205	380-390	0.538	500-510	0.199	800-900	3.186
270-280	2.678	390-400	0.488	510-520	0.199	900-1000	2.947
280-290	2.877	400-410	2.862	520-530	0.199	1000-1100	3.942
290-300	4.231	410-420	0.304	530-540	0.249	1100-1200	3.544
300-310	3.883	420-430	0.319	540-550	3.325	1200-1300	2.190
310-320	5.730	430-440	5.207	550-560	1.563	1300-1400	4.580
320-330	0.538	440-450	0.498	560-570	0.249	1400-1500	2.091
330-340	1.572	450-460	0.199	570-580	3.463	1500-1600	2.449
340-350	0.448	460-470	0.199	580-590	4.908	1600-1700	2.051
350-360	0.886	470-480	0.199	590-600	0.521	1700-1800	2.190
360-370	8.403	480-490	0.229	600-700	3.467	1800-1900	1.990
370-380	1.473	490-500	0.483	700-800	2.041	1900-2000	1.990

UV illumination down to 180 nm

Although the spectral output charts above do not show data below 250 nm, the PowerArc can deliver light down to 180 nm, the lowest available wavelength emission of the xenon plasma. Some arc lamps use quartz envelope bulbs that do not transmit UV wavelengths. These lamps are sometimes called ozone free bulbs because they do not emit in the deep UV and hence create ozone when interacting with oxygen in the air. We offer both ozone free and UV enhanced bulb choices, as well as different window materials for the front output of the lamp housing, so that our customers can choose the best components for their requirements.

For requirements below 250 nm please select from one of the two following xenon lamps when requesting your quote.

Part Number	Description
142	75 W suprasil (extended life) xenon arc lamp, output above 180 nm
145	150 W xenon arc lamp, output above 210 nm

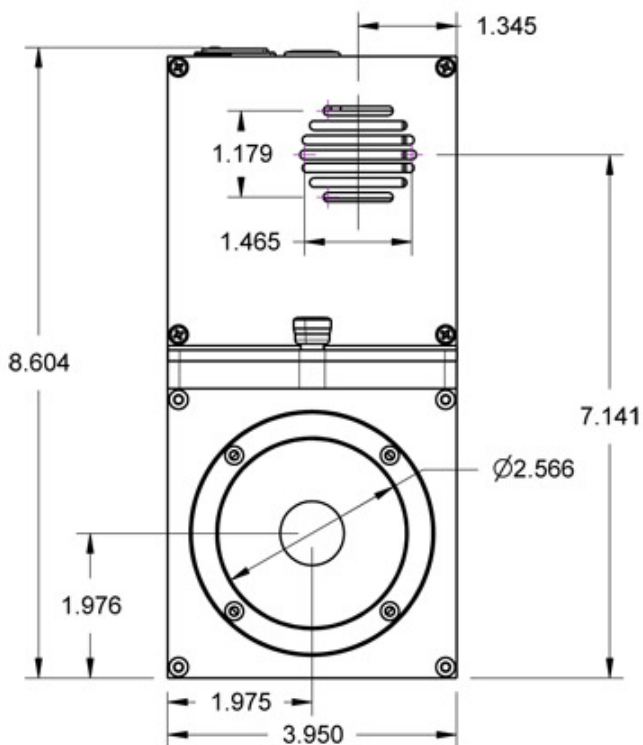
Higher Resolution Gratings Can Provide Higher Intensities

The data curves above are all from illuminators that had a 1,200 g/mm grating. You will note from these curves that doubling the bandpass, or slit size, typically results in a factor of four increase in intensity. This is true as long as the slit size is the same or equal to the optical spot size. Therefore if you used a 2,400 g/mm grating you would be doubling the slit size from a 1,200 g/mm grating to maintain an equivalent bandpass. Thus a Tunable PowerArc™ Illuminator equipped with a xenon lamp and a 2,400 g/mm grating blazed at 300 nm will give you up to 80 milliwatts of optical power in a 20 nm bandpass. However the 2,400 g/mm grating will only mechanically scan up to 600 nm, see monochromator for more details.

Mounting Information

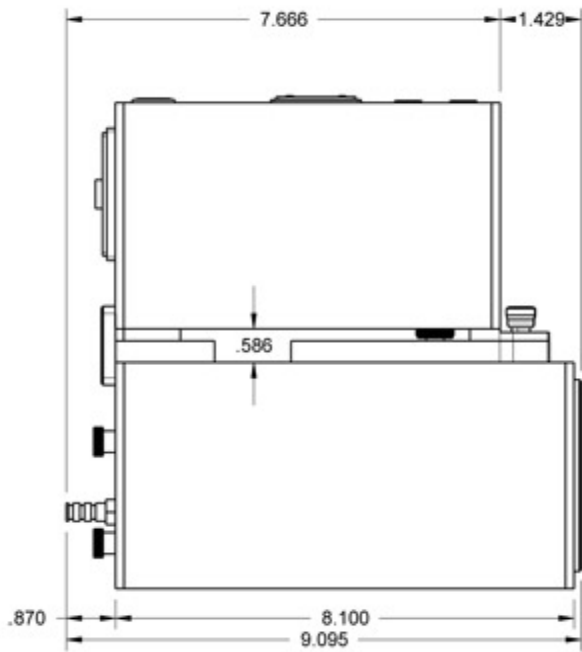
Please note at the that the mounting information is for the PowerArc™ with the integrated power supply/igniter.

Front View

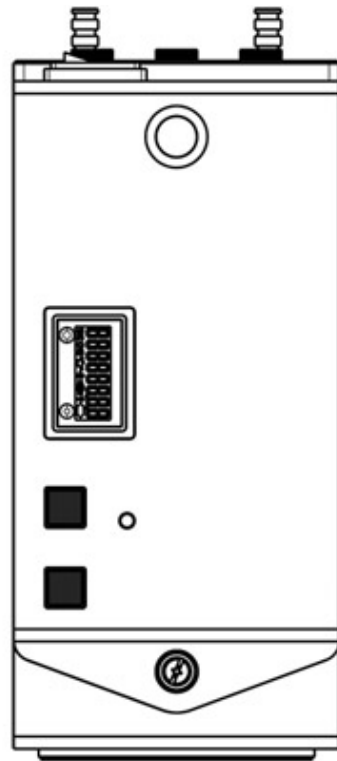


Mounting Information Continued

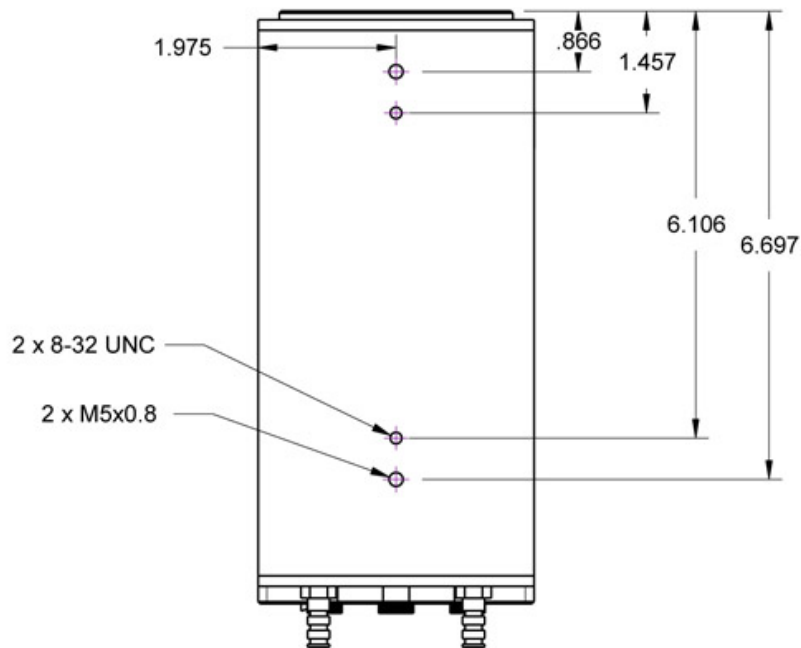
Right View



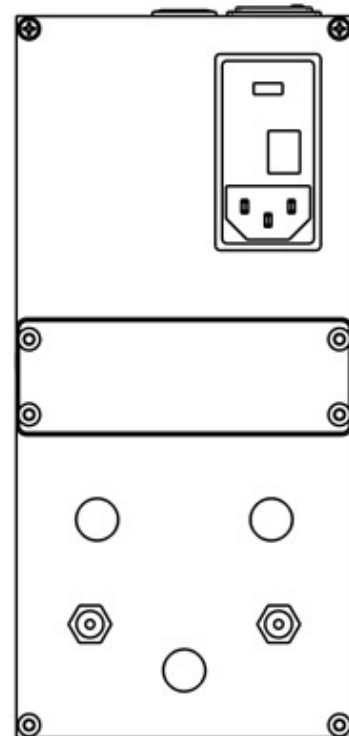
Top View



Bottom View

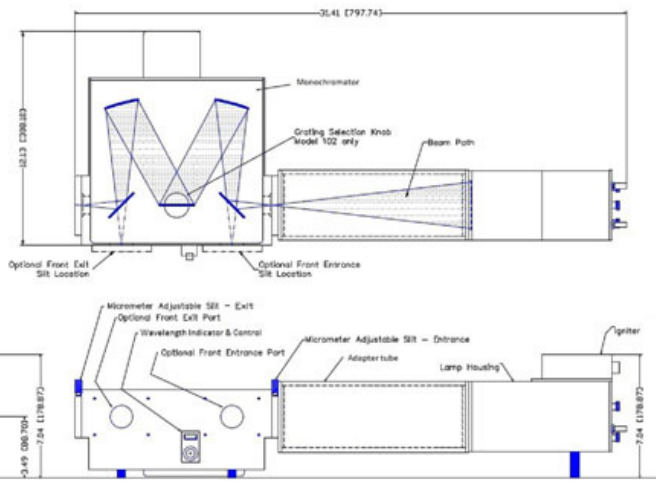
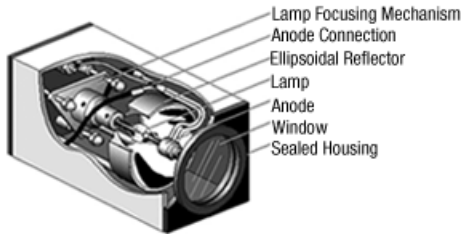


Rear View



Lamp Housing Specifications

Lamp power capacity	75 to 150 watts
Height	100 mm (3.9 inches)
Width	100 mm (3.9 inches)
Length	210 mm (8.3 inches)
Weight	1.9 kg (4.2 pounds)
Window Diameter (D)	65 mm



Note: There are M5 or 8/32 tapped holes on the bottom of the lamp housing to allow mounting of the housing to mounting posts.

Power Supply Specifications

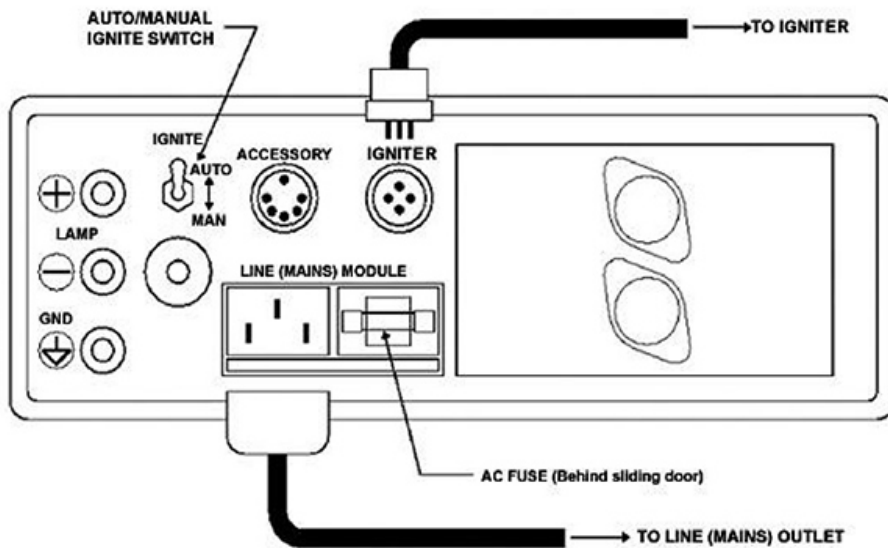
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Pre-Ignition Voltage	65–75 V DC
Ripple at Max Current	< 3% peak to peak
Stability After Warm-up	0.5%
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75 to 150 Watt Universal Power Supply Specifications

Input (user selectable)	105–120 V/60 Hz or 210–240 V/50 Hz
Power Rating	0 to 150 watts
Operating Voltage	10 to 24 volts
Operating Current	0 to 8 amps
Pre-Ignition Voltage	> 85 volts
Ripple at Max Current	< 10 millivolts
Stability After Warm-up	0.2%
Line Voltage Regulation	<0.1% current variation for 50% change in load impedance
Dimensions	4.5 x 10.75 x 12.5 inches, 11.5 x 27.3 x 31.8 cm
Weight	12 pounds, 5.45 kg

Universal Supply Connections for Arc Lamp



Universal Supply Connections for Tungsten Lamp

