

# Spectral Products

Spectrometers · Spectrophotometers · Color Instruments · Spectrographs · Monochromators

111 Highland Drive · Putnam, CT · 06260 · USA  
PHONE (860) 928-5834 · FAX (860) 928-2676  
<http://www.spectralproducts.com>

## High power Tungsten- Halogen Light Source

- ASBN-W-050 / ASBN-W075 -
- ASBN-W100 / ASBN-W150 -

## Operation Manual



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## Important Safety Notices

- 1. Never look directly into the light beam, including through the cooling fan while light is on, as this can cause eye damage.**
- 2. Do not remove or modify any installed safety device on this equipment. Doing so will void your warranty and create an unsafe operating environment.**
- 3. Do not use the unit if it is damaged in any way. Contact your dealer for repair or replacement information.**

## Warranty and Liability

This SP's product is warranted against defects in material and workmanship for a period of one year from the date of shipment. During the warranty period, Spectral Products will, without charge, repair or replace, at its discretion, the defective product or component parts.

For warranty service or repair, this product must be returned to a service facility designated by Spectral Products (SP). For products returned under warranty, the Buyer shall prepay shipping charges (including shipping charges, duties, and taxes for products returned to SP from another country), and SP will pay for shipping charges to return the product to the Buyer.

This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations, modifications or repairs, if the serial number is altered, defaced or removed, the improper or inadequate maintenance by the Buyer, Buyer-supplied software or interfacing, or improper site preparation or maintenance. No other warranty is expressed or implied. SP shall not be liable for any consequential damages, including without limitation, damages resulting from loss of use, as permitted by law.

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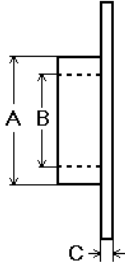
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## Specification

The following tables provide information on our high-power tungsten-halogen light sources.

### Overview

<b>Mount</b>	Tapered flange, adjustable, Post mounting for standalone operation
<b>Housing</b>	Air cooled w/ focusable fused silica singlet collection lens, 1" size w/ focusable Al coating mirror, 1" size Dimension:
<b>Output type</b>	<p><b>Collimated (C)</b> : Connection Flange (right fig)                  A: 1.0" (25.4mm),                  B: 0.875" (22.2mm),                  C: 0.1" (2.54mm),                  Accuracy: <math>\pm 0.005</math>"</p> 
	<b>Fiber coupling (F)</b> : SMA905 or FC

### Electric

<b>Electric Power Input</b>	<p><b>Input:</b> 85-264 VAC, 47-63Hz  <b>Inrush Current:</b> 30A/100V, 40A/200V  <b>Over-voltage protection:</b> Clamp, 115-135%  <b>Current limit:</b> 105-150% typically, self-reset fold back  <b>Safety:</b> UL/TUV/CE  <b>Operation Temperature:</b> 0 to 50 °C</p>
<b>Electric Power Output</b>	<p><b>VDC:</b> 12V (50-100W), 24V (150W)  <b>Max. Current:</b> 12.5A (50-100W), 8.4A (150W)  <b>Ripple/Noise:</b> 100mV Peak to Peak, typically.  <b>Regulation:</b> +/-0.5% typically</p>

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## Component

<b>Optics</b>	<b>Lens</b>	<b>Fiber coupling</b>	1" UV grade fused silica (quartz) bi-convex lens, R=23.9mm or 21.4mm, f=25.0mm (nominal), F# in the housing = ~1.97
		<b>Collimated</b>	1" UV grade fused silica (quartz) plano-convex lens, R=18.0mm, f=35.0mm (nominal), F# in the housing = ~1.38 (Effective: ~1.84)
	<b>Mirror</b>	1.0" UV protected Al coating mirror, f=12.5mm	
<b>Lamp</b>	<b>50W</b>	Filament size: 2.5mm x 4.2mm Light Output: 900 lumens (nominal) Voltage: 12.0 V (nominal) Color Temperature: 3000°K Average Life: 2,000 hours (nominal)	
	<b>75W</b>	Filament size: 1.6mm x 5.0mm Light Output: 1400 lumens (nominal) Voltage: 12.0 V (nominal) Color Temperature: 3000°K Average Life: 2,000 hours (nominal)	
	<b>100W-L</b>	Filament size: 2.0mm x 5.0mm Light Output: 2300 lumens (nominal) Voltage: 12.0 V (nominal) Color Temperature: 3000°K Average Life: 2,000 hours (nominal)	
	<b>100W-H</b>	Filament size: 2.3mm x 4.2mm Light Output: 3600 lumens (nominal) Voltage: 12.0 V (nominal) Color Temperature: 3450°K Average Life: 50 hours (nominal)	
	<b>150W-L</b>	Filament size: 3.2mm x 6.0mm Light Output: 5000 lumens (nominal) Voltage: 24.0 V (nominal) Color Temperature: 3400°K Average Life: 300 hours (nominal)	
	<b>150W-H</b>	Filament size: 2.9mm x 5.8mm Light Output: 6000 lumens (nominal) Voltage: 24.0 V (nominal) Color Temperature: 3450°K Average Life: 50 hours (nominal)	

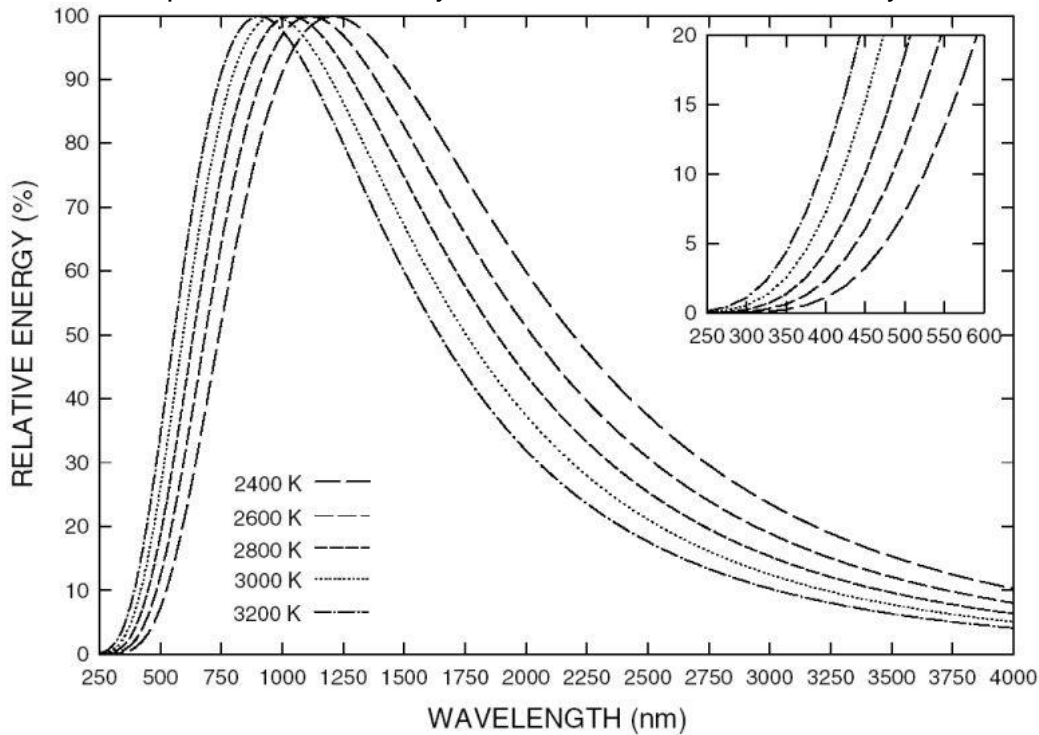
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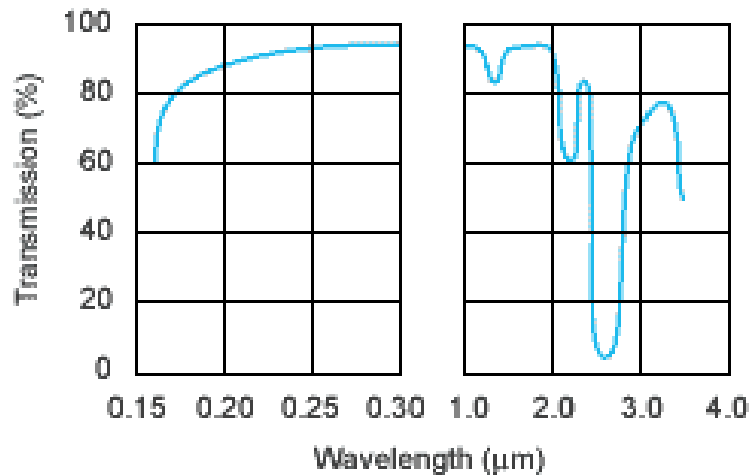
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## Spectrum

The Tungsten-halogen light source is a well known near black body radiation source. Its spectrum is also very similar with those of black body radiation.



The envelope of tungsten-halogen lamps is made of quartz. Quartz transmittance, therefore, needs to be considered.



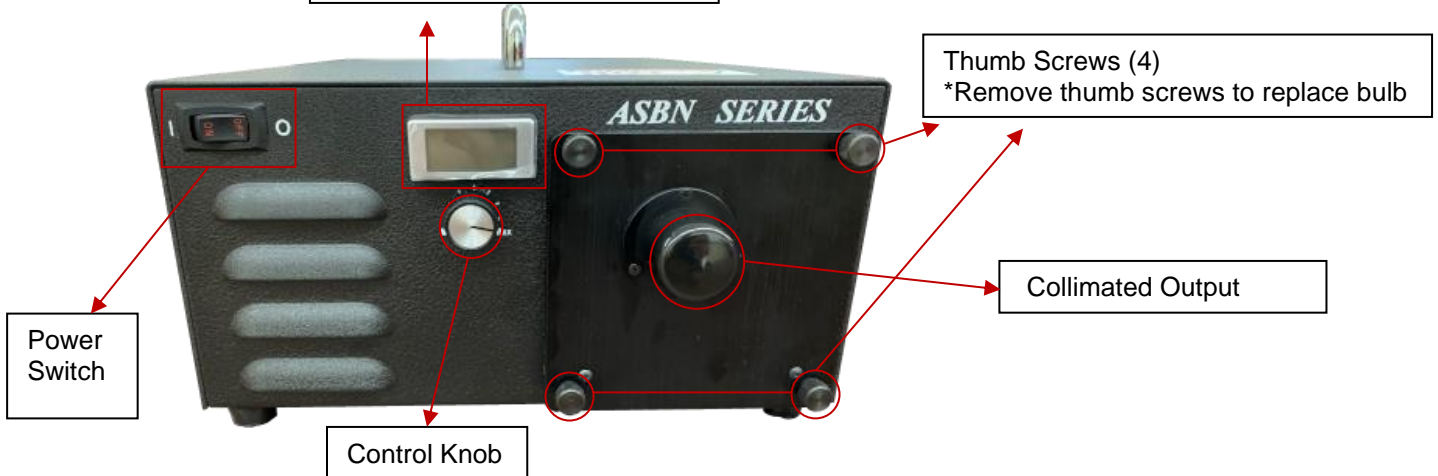
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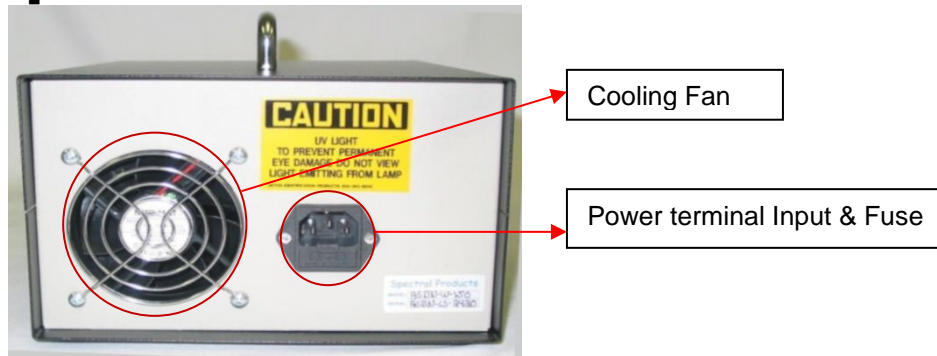
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## Operation

[Front]



[Back]



<b>Component</b>	<b>Description</b>
<b>Power terminal input</b>	Connect power cable to provide voltage to our high-power tungsten-halogen light source.
<b>Power switch</b>	Turn on to supply power to the tungsten-halogen lamp. The RED light illuminates when this switch is in the "ON" position.
<b>Fuse</b>	Contains the fuse to protect the unit against overload: Fuse type: 5A/250V
<b>Cooling fan</b>	Cools the interior of the light source housing. <b>Note:</b> Do not look directly into the light beam through this fan.
<b>Driving Voltage Indicator</b>	For ASBN-W-PV option user: Show the current percentage of the designed driving voltage. The designed driving voltage of 50-100W lamps is 12V and that of 150W is 24V. It varies from 0% to 100%.
<b>Control Knob</b>	For ASBN-W-PV option user: Controls the relative tungsten-halogen driving voltage from ~0% (min) to ~100% (max).

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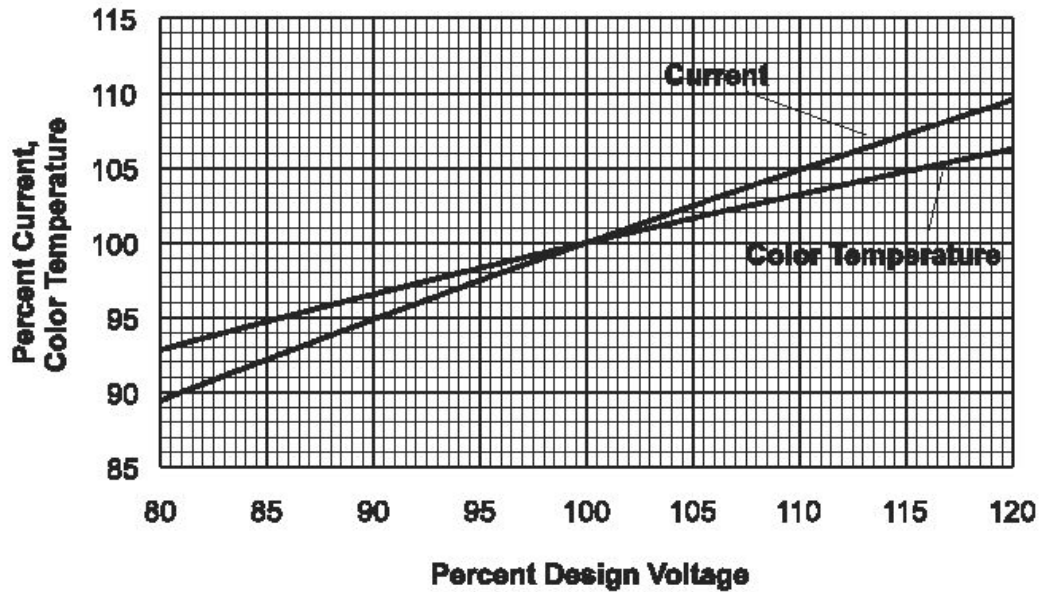
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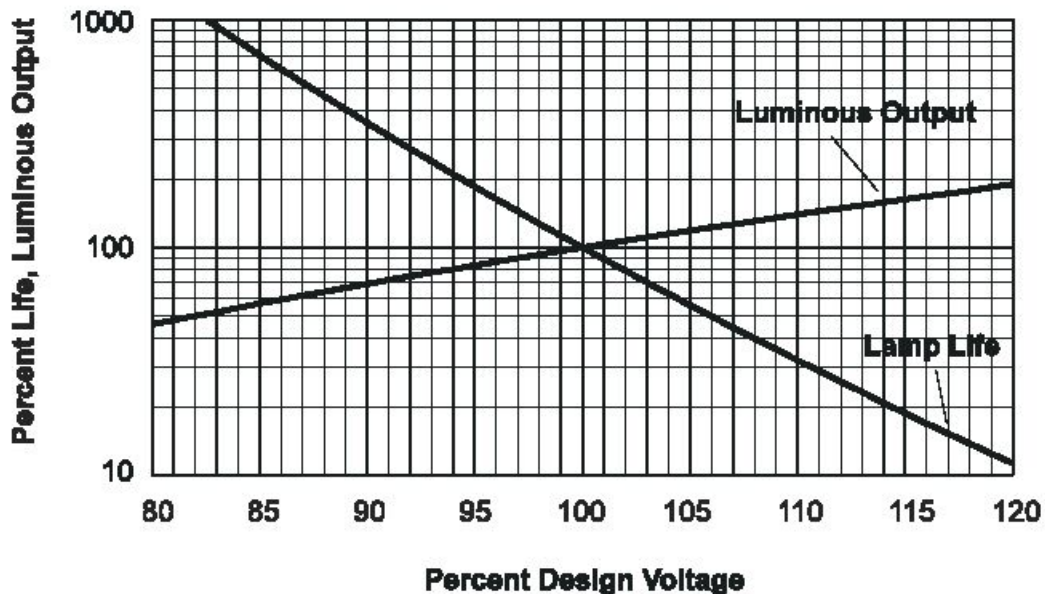
## Relationship Curves for ASBN-W-PV

The following curves show the relationship between the driving voltage setting and the color temperature/current/luminous power/lifetime on/off the lamp.

### Color Temperature/Current vs. Driving Voltage:



### Life time/Luminous power vs. Driving Voltage:



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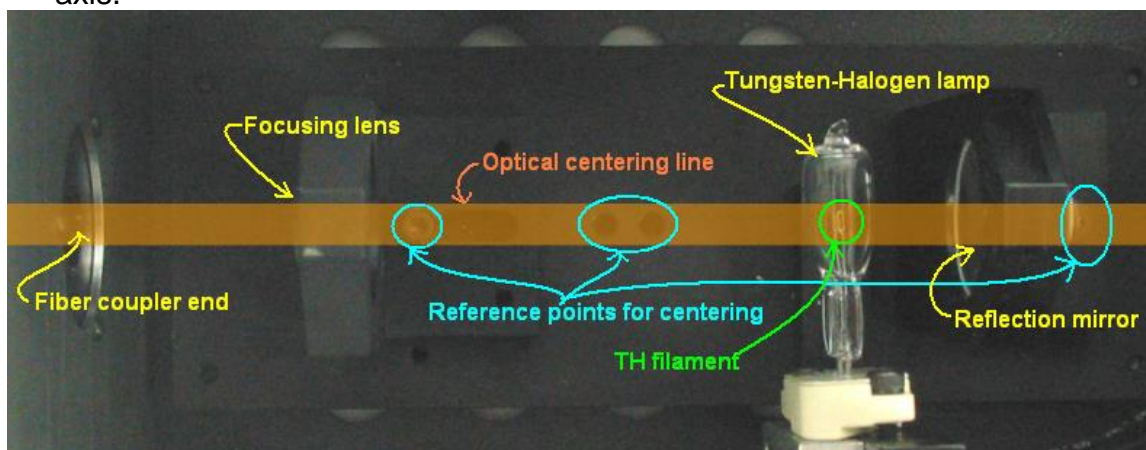
## Bulb Replacement

### Replacing the Tungsten-Halogen bulb

1. Turn off all power.
2. Wait until the lamp cools down.
3. Remove (4) Thumb Screws from front panel.
4. Use this panel to slide for access to bulb.



5. Do not handle bulb with bare fingers. Replace the bulb, sitting it squarely in socket.
6. Align the Tungsten-halogen filament position to be in the center line of the optical axis.



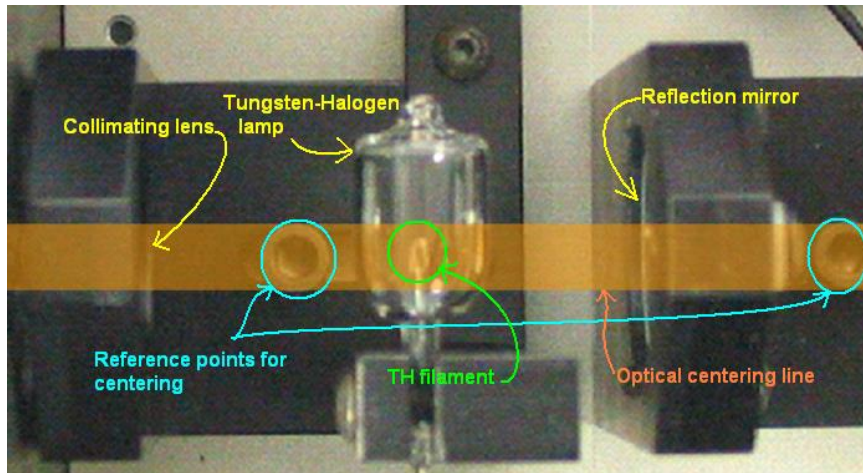
Fiber coupling option



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Collimating output option

**NOTE:** All the optical components were properly aligned by SP. Do not touch any mounting screws. Adjust the bulb itself when aligning the filament position.

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## Technical Support

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