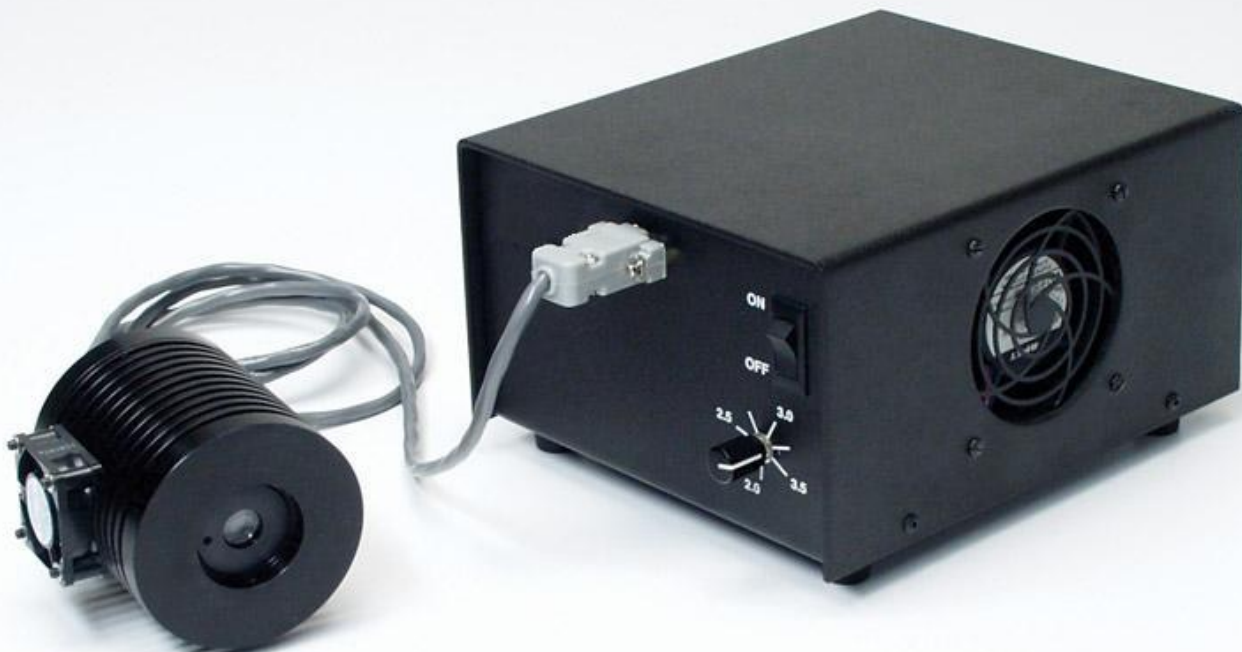


# 30W High Stability Tungsten-Halogen Light Source

- ASB-W-030 -

## Operation Manual





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[www.spectralproducts.com](http://www.spectralproducts.com)

## Important Safety Notices

1. Never look directly into the light beam, including through the cooling fan while the 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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## General Information

The ASB-W-030 is a complete light source assembly with a tungsten-halogen lamp that emits in the 300 to 2600 nanometer (nm) wavelength region. It has been designed to transfer the maximum possible illumination from a tungsten-halogen lamp to Digikröm monochromators. The tungsten-halogen lamps of the ASB-W-030 are near blackbody sources of light with fused silica envelopes around the lamp filaments. Figure 1 shows blackbody spectral distributions at various color temperatures in Kelvin (K). The ASB-W-030 spectral distributions resemble those of Figure 1 out to about 2600nm, beyond which the transmission of the fused silica lamp envelope limits the output.

In addition to the 30W tungsten-halogen lamp (SP type ASB-W-030B), the ASB-W-030 features a housing for the lamp and an adjustable constant current power supply. The housing contains a focusable fused silica lens assembly selected for optimum coupling to the monochromator. The focus adjustment also allows for flexible mounting configurations for the ASB-W-030, with output focusing adjustable over a wide range of focal lengths. This also makes the ASB-W-030 an excellent light source for illumination of samples.

The 30W tungsten-halogen lamp used in the ASB-W-030 has a nominal color temperature of 3100 K and an average life of 400 hours at this temperature. The color temperature of the lamp is directly proportional to the lamp current which may be varied  $\pm 25\%$  with a control knob on the power supply. Over this range, both illumination and average life will change by approximately  $\pm 50\%$ .

The optics of the ASB-W-030, in combination with the 30W lamp, provide maximum illumination for monochromators. Higher power lamps have larger filaments, but no greater brightness per unit area. A filament larger than the 30W size would simply overfill the entrance slit.

The power supply provided with the ASB-W-030 is a DC current-regulated power supply. Current regulations optimize color temperature stability.



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# Installation and Operation

## 1. LAMP HOUSING MOUNTING:

The ASB-W-030 is easily mounted to either the CM or DK series of **Digikröm** Monochromators and Spectrographs. The tapered flange is for use with the DK series and mounts with the use of the two screws provided with the flange. The tapered side of the flange should be facing away from the monochromator. This flange is not required for use with the CM series and can be discarded if provided.

Insert the open end of the housing over the flange or the standard port flanges on the CM series and tighten the three setscrews on the housing. These screws provide the ability to center the lamp filament image on the monochromator's slit.

## 2. CURRENT ADJUSTMENT:

The current driving the lamp may be adjusted at the front of the ASB-W-030 power supply. The color temperature, power output, and lamp life can be altered by adjusting the amount of current. As a rule of thumb, color temperature is directly proportional to the lamp current, power output increases as the fourth power of the lamp current and the lamp life is inversely proportional to the power output.

## 3. 9 PIN EXTENSION CABLE:

Use the cable to connect the ASB-W-030 Lamp Assembly to the Power Supply.

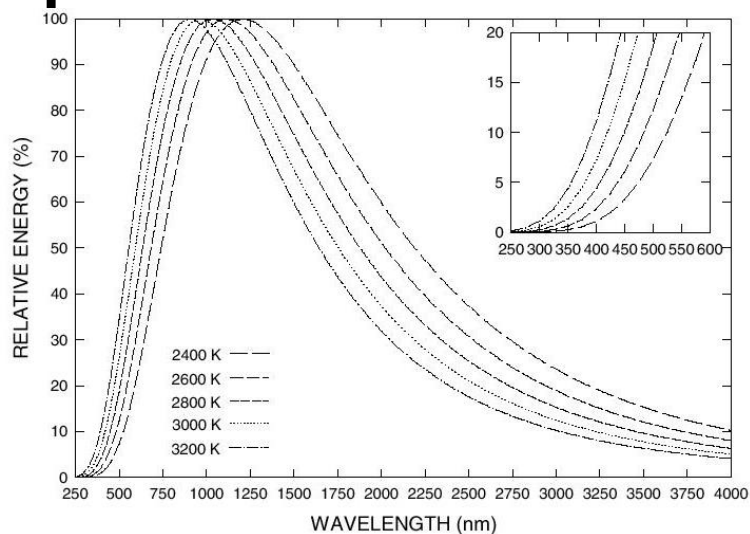
## 4. FOCUS:

Set the monochromator at zero nm and adjust the screw at the rear of the housing until the filament image is sharp. A better focus will result in better light transmission.

## Specifications

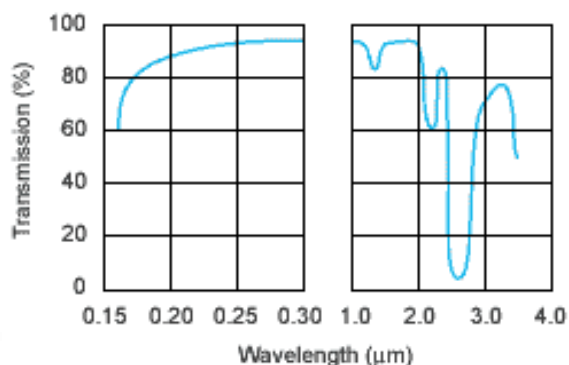
Lamp	Type: Tungsten-halogen Filament size: 1mm x 4mm Power input: 30Ws (nominal) Light Output: 530 lumens (nominal) Current: 2.75 amp (nominal) Color Temperature: 3100°K Average Life: 400 hours (nominal)
Mount	Tapered flange, adjustable, Post mounting for standalone operation
Housing	Air cooled with focusable fused silica doublet collection lens, f/1.9 collection, and f/3.9 output.
Power Input	115 VAC, 50/60 Hz, 1 amp (standard) 220 VAC, 50/60 Hz, 0.5 amp (optional)
Power Output	Type: constant current DC Range: 2.0 amp to 3.5 amp Regulation: 0.05%
Spectral Distribution	near blackbody
Warranty	One year

## Spectrum Curves



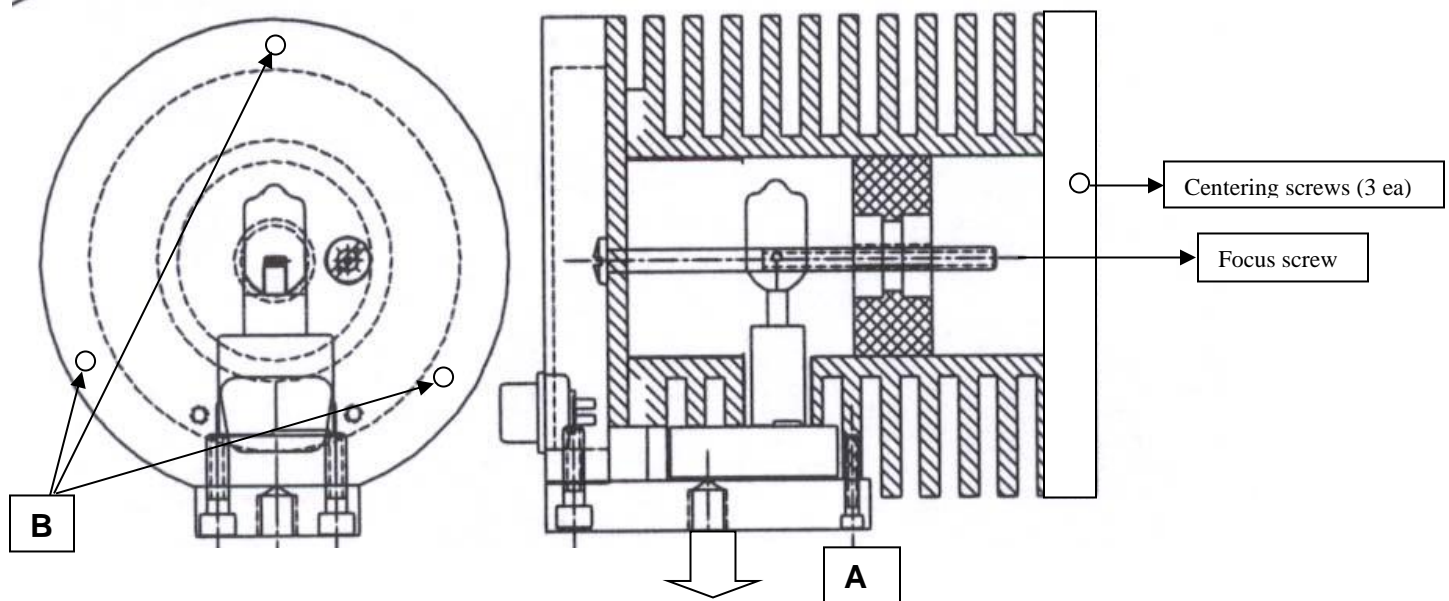
**Black body Radiation Curves**

**Fused silica Transmittance Curve**



## CHANGING THE BULB

1. Remove the top screw from the lamp mount base (**Fig1.A**) and three bottom screws (**Fig1.B**) and gently pull the assembly from the housing.
2. Disconnect the Fan leads from the connector to remove the lamp mount base completely.
3. Pull the two-pronged bulb from its base and replace it with a new bulb. Care must be taken to avoid touching the bulb with bare fingers as this may result in loss of intensity and/or premature lamp failure.
4. Reconnect the Lamp leads and re-insert the lamp assembly into the housing.



**Fig 1.**

**ASB-W-030 LAMP HOUSING**



# Appx. Power supply technical datasheet

## 1. Key features:

- RoHS compatible for all six substances
- CE marked to Low Voltage Directive
- Worldwide AC input capabilities
- $\pm 0.05\%$  Output Regulation with low output ripple
- Mean time before failure (MTBF) 300,000 hours.
- Constant current adjustable output



## 2. Input Specifications:

Parameter	Conditions/Description	Min	NOM	Max	Units
AC Input voltage	Selectable. All models must be externally fused for proper operation	104 191	120 220	132 242	VAC
Input Frequency	AC input	47		63	Hz
Line Regulation	Outputs with adjustable three terminal regulators	-0.05		+0.05	%

## 3. Output Specifications:

Parameter	Conditions/Description	Min	NOM	Max	Units
Output Adjustment	Minimum output adjustment range	-5		+5	%
Efficiency	12Vdc output		55		%
Ripple and Noise	12Vdc output			5.0	mV <sub>p-p</sub>
Load Regulation	Outputs with adjustable three terminal regulators	-0.05		+0.05	%
Transient Response	Recovery time, to within 1% of the initial set point due to a 50% load change			50	uSec

## 4. Other Specification:

Parameter	Conditions/Description	Min	NOM	Max	Units
Operating temp.	Derate output power linearly above 50°C by 3% per °C	0		50	°C
Storage temp		-40		70	°C
Shock	Operating.			20	Gpk
Vibration	Random vibration from 10 Hz to 2KHz, 3 axis			6.15	Grms
Relative Humidity	Non-condensing	5		95	%RH
Overcurrent/Short Circuit Protection	Automatic current limit/foldback. Rated as a percentage of output power	115	120	140	%
Leakage Current	Per EN 62368-1 (264 Vac)		23	50	uA



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## Technical Support

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