



## Halogen Light Source HL-2000 / HL-2000-LL / HL-2000-HP

# Installation and Operation Manual

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# Important Safety Notices

1. Do not remove or modify any installed safety device on this equipment. Doing so will void your warranty and create an unsafe operating environment.
2. Dangerous voltages are present in this device. There are NO user serviceable parts inside.
3. Only allow qualified personnel to service this unit.
4. Do not use the unit if it is damaged in any way. Contact your dealer for repair or replacement information.



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# About This Manual

## Document Purpose and Intended Audience

This document provides you with an installation section to get your system up and running.

## What's New in this Document

This version of the *Halogen Light Source HL-2000 / HL-2000-LL / HL-2000-HP Installation and Operation Manual* updates the logo and contact information.

## Document Summary

Chapter	Description
Chapter 1: <a href="#">Setup</a>	Contains a list of package contents and unpacking instructions.
Chapter 2: <a href="#">HL-2000 Specifications</a>	Contains operating environment specifications, as well as other physical details of the product.
Appendix A: <a href="#">Bulb Replacement</a>	Provides instructions for changing the bulb.

## Product-Related Documentation

You can access documentation for Ocean Optics products by visiting our website at <http://www.oceanoptics.com>. Select *Technical* → *Operating Instructions*, then choose the appropriate document from the available drop-down lists. Or, use the **Search by Model Number** field at the bottom of the web page.

You can also access operating instructions for Ocean Optics products on the *Software and Technical Resources* CD included with the system.

Engineering-level documentation is located on our website at *Technical* → *Engineering Docs*.

## Upgrades

Occasionally, you may find that you need Ocean Optics to make a change or an upgrade to your system. To facilitate these changes, you must first contact Customer Support and obtain a Return Merchandise

**About This Manual**

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Authorization (RMA) number. Please contact Ocean Optics for specific instructions when returning a product.



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# Chapter 1

# Setup

## Setting Up the HL-2000 Light Source



Use the following procedure and refer to [HL-2000 Diagrams](#) to set up your light source.

► **Procedure**

Perform the steps below to set up your HL-2000 Light Source:

1. Plug the power supply into a wall outlet.

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**Note**

The HL-2000-HP Series of light sources requires a 24 VDC power supply. Do not use the standard 12 VDC power supply.

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## 1: Setup

2. Plug the other end of the power supply cable into the socket of HL-2000.
3. Connect the SMA connector of your fiber optic cable to the SMA plugs.
4. Turn the Halogen lamp on using the power switch on the rear of the HL-2000.

# Optimizing the Optical Power Output

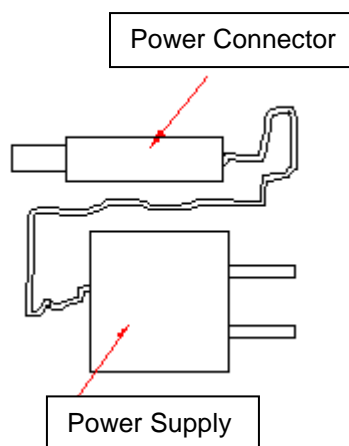
The HL-2000 is adjusted at the factory to provide maximum power into a 200 $\mu$ m fiber. If a lower optical power is required or a different fiber (bundle) diameter is used, you can adjust the optical power of the unit. Refer to [HL-2000 Diagrams](#) while using the following procedure.

### ► Procedure

Follow the steps below to adjust the optical power of the HL-2000 Light Source:

1. Connect a fiber optic spectrometer or an optical power meter to a fiber, and then connect the other end of the fiber to the HL-2000's SMA plug.
2. Loosen the blocking screw with the provided 1.3mm Allen wrench.
3. Shift the SMA socket to optimize the optical power of the HL-2000.
4. Tighten the blocking screw to secure the SMA socket position.

## HL-2000 Diagrams



**Figure 1: HL-2000 Power Supply**

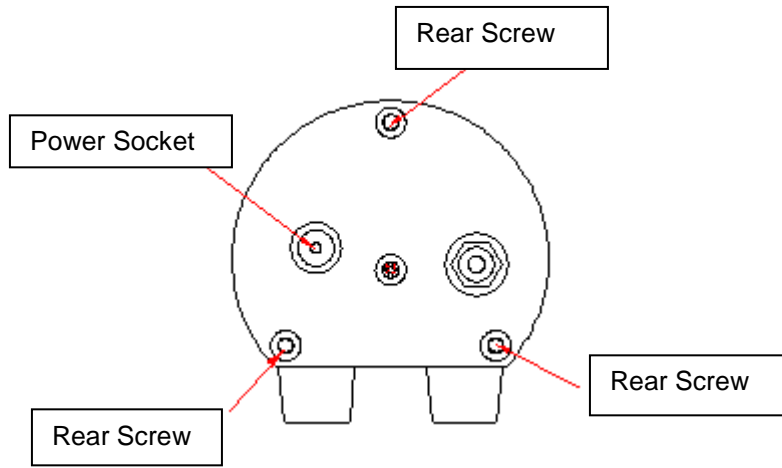


Figure 2: HL-2000 Rear View

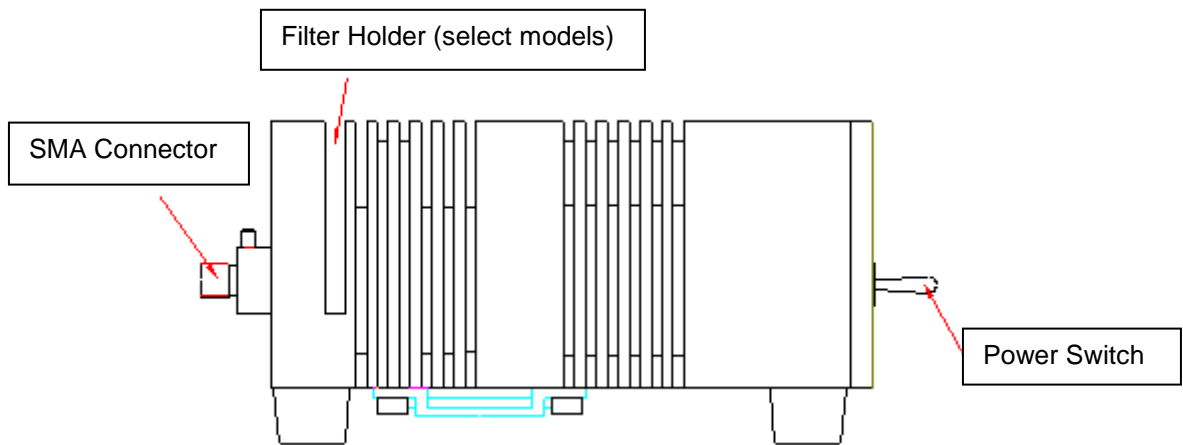
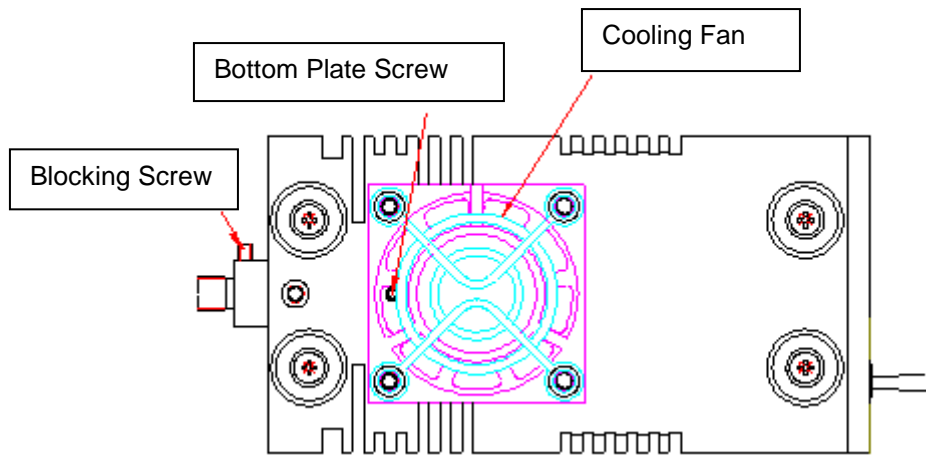


Figure 3: HL-2000 Side View



**Figure 4: HL-2000 Bottom View**

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## Chapter 2

# HL-2000 Specifications

This section provides information on the operating environment, physical controls, and dimensions of the HL-2000. It also provides a parts list.

## Specifications

	HL-2000	HL-2000-LL	HL-2000-HP
Wavelength range	360 nm – 2400 nm		
Stability	0.5 %		
Drift	<0.3% per Hour		
Time to stabilize	Approximately 5 Minutes		
Power Consumption	1.2A @ 12 VDC	1.0A @ 12VDC	1.2A @24VDC
Bulb life time	1500 h	10,000 h	1000 h
Characteristic	Focused		
Bulb color temperature	2,960K	2,800K	3,000K
Room temperature	5°C – 35°C		
Humidity	5 - 95% at 40°C		
Output	7W	7W	20W
Weight	Approximately 0.5 kg		
Size	62 x 60 x 150 mm		

## Parts List

Spare Parts / Order Information	Catalog Number
Halogen light source with filter holder/shutter and attenuator	HL-2000
Halogen light source, fan cooled, long life	HL-2000 -LL
Halogen light source high-power 20 W version	HL-2000-HP
Halogen spare bulb 2960K/ 1.500 hrs	HL-2000-B
Halogen spare bulb 2800K / 10.000 hrs	HL-2000-LL-B
Halogen spare bulb High-Power	HL-2000-HP-B



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## Appendix A

# Bulb Replacement

## Overview

To order replacement bulbs for the HL-2000, consult the [Parts List](#).

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### **WARNING**

**Before replacing the bulb in the HL-2000, disconnect the lamp from your power source and allow the unit to cool for at least twenty minutes, if necessary.**

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## Identifying the Bulb Type

### ► **Procedure**

Perform the steps below to identify the bulb type:

1. Unplug the power connector from the power socket on the HL-2000.
2. Loosen the screws on the rear of the unit with the provided 2.5mm Allen wrench.
3. Remove the backside of the HL-2000 and remove the electronics board from the HL-2000, taking particular care not to disconnect the fan wires.
4. Remove the screws from the bottom plate of the unit with the provided 1.3mm Allen key.

5. Inspect the bulb for the bulb code/description. The bulb codes and descriptions are as follows:

<b>Bulb Code</b>	<b>May 2003 and Later - Description</b>	<b>Before May 2003 - Description</b>
HL-2000-B	Cable: Black and red Small housing AD = 13mm	Cable: Black and red Small housing AD = 13mm
HL-2000-BL	Cable: Black and yellow Small housing AD = 13mm	Cable: Black and red Small housing AD = 13mm Ring marker
HL-2000-B-HP	Cable: Black and blue Small housing AD = 13mm	Cable: Black and red Small housing AD = 13mm Bigger bulb

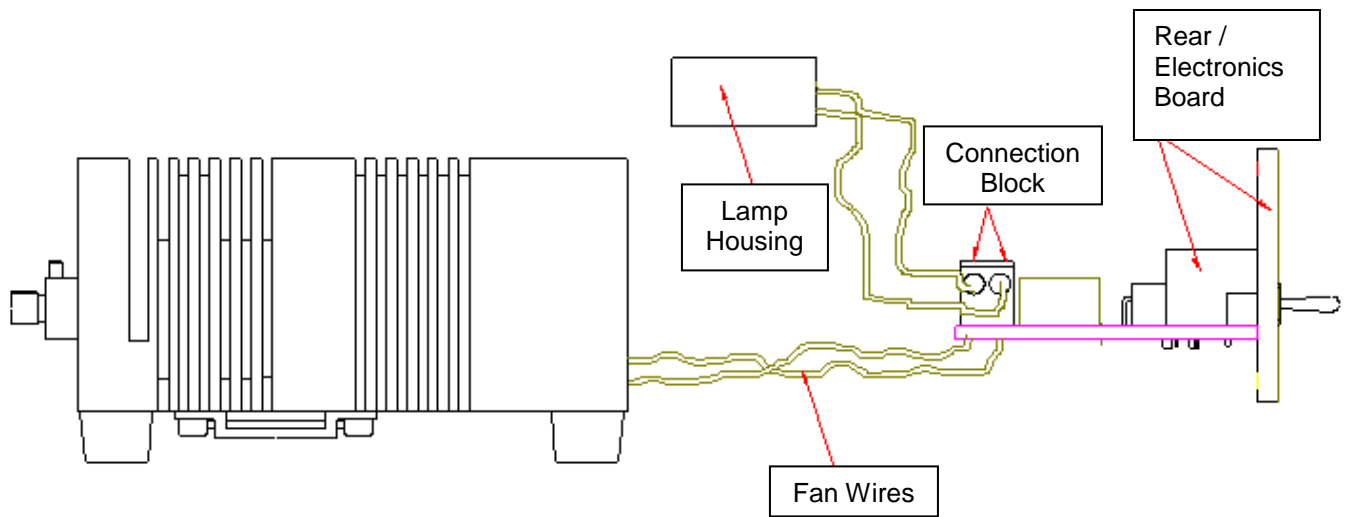
## Replacing the Bulb

### ► *Procedure*

Refer to Figure 5 and perform the steps below to replace the bulb in the HL-2000 Light Source:

1. Unplug the power connector from the power socket on the HL-2000.
2. Loosen the screws on the rear of the unit with the provided 2.5mm Allen wrench.
3. Remove the backside of the HL-2000 and remove the electronics board from the HL-2000, taking particular care not to disconnect the fan wires.
4. Remove the screws from the bottom plate of the unit with the provided 1.3mm Allen key.
5. Remove the bulb from the HL-2000.
6. Disconnect the wires from the connection block.
7. Replace the bulb and reconnect the wires to the connection block.
8. Slide the lamp into the housing and secure the housing with the bottom screw.
9. Slide the electronics board back into the HL-2000, taking particular care to ensure that the wires do not come into contact with the fan blades.





**Figure 5: HL-2000 Bulb Replacement Diagram**



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