



HL-2000-FHSA

Halogen Light Source with Attenuator and TTL-Shutter
Installation and Operation Manual



Products: HL-2000-FHSA, HL-2000-FHSA-LL, HL-2000-FHSA-HP

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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 Ocean Insight 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.

Warranty

For the most current warranty information, please visit [OceanInsight.com](https://www.oceaninsight.com).

Setup

Overview

Before using the HL-2000-FHSA for the first time, check for transport damage. Be sure to adhere to all warnings on the unit and in this manual.

Unpacking the HL-2000-FHSA

1. Unpack your lamp assembly carefully. Dropping this instrument can cause permanent damage.
2. Inspect the outside of the instrument and make sure that there is no damage. Do not use the instrument if damage is present. Contact your dealer for repair or replacement information, if necessary.
3. Use this instrument in a clean laboratory environment.

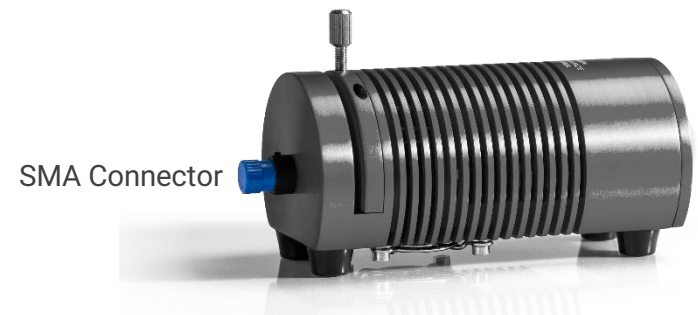
Contents

Your HL-2000-FHSA package should contain the following:

- HL-2000 Light Source
- One IC-DB15-2 interface cable for shutter operation

Setting Up the HL-2000-FHSA Light Source

1. Plug the power supply into a wall outlet.
2. Plug the other end of the power supply cable into the socket of HL-2000-FHSA.
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-FHSA.

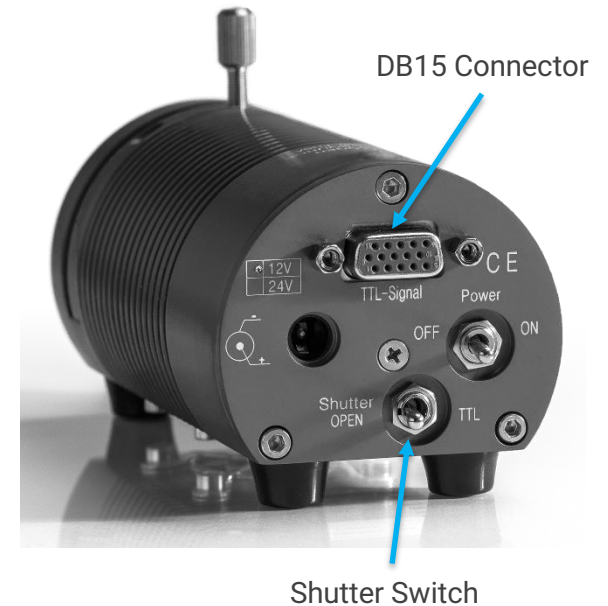


Enabling Automatic Shutter Control

The HL-2000-FHSA is equipped with a 15-pin TTL port on the rear of the unit that allows an external source to control the shutter of the HL-2000-FHSA.

To enable automatic shutter control (TTL), perform the following steps:

1. Insert the supplied IC-DB-15-2 15 pin connector into the port on the rear of the HL-2000-FHSA.
2. Move the shutter switch on the rear of the unit into the appropriate position to select the shutter mode.
 - Open – Shutter open
 - Close – Shutter closed
 - TTL – Controlled by external TTL (High = Open, Low = Closed)



NOTE

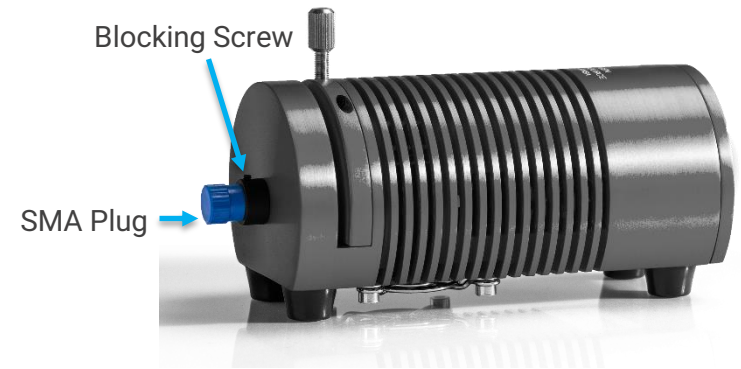
Use Ocean Insight software to save a dark measurement.

Optimizing the Optical Power Output

The HL-2000-FHSA is adjusted at the factory to provide maximum power into a 200 μm 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 while using the following procedure.

Follow the steps below to adjust the optical power of the HL-2000-FHSA 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-FHSA's SMA plug.
2. Loosen the blocking screw with the provided 1.3 mm Allen wrench.
3. Shift the SMA socket to optimize the optical power of the HL-2000-FHSA.
4. Tighten the blocking screw to secure the SMA socket position.



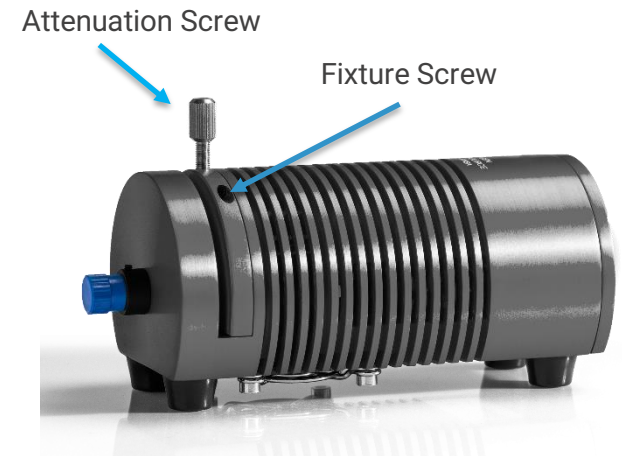
Attenuating the Optical Power Output

The HL-2000-FHSA allows you to attenuate the optical output of the unit by adjusting the attenuation screw.

To attenuate the optical output of the HL-2000-FHSA, follow the steps:

1. Ensure that the shutter switch on the rear of the unit is in the open position.
2. Loosen the fixture screw with the provided 2.0 mm Allen wrench.
3. Turn the attenuation screw until the desire optical power is achieved.
4. Tighten the fixture screw when finished.
5. To attenuate the optical output of the HL-2000-FHSA, turn the attenuation-screw clockwise.

Caution: The attenuation screw can prevent the shutter from opening if turned clockwise too far. If the shutter is not working, turn the attenuation screw counterclockwise.

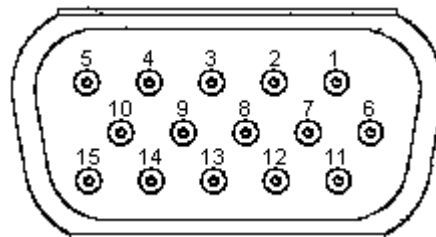


HL-2000-FHSA Specifications

	HL-2000-FHSA	HL-2000-FHSA-LL	HL-2000-FHSA-HP
Wavelength range	360 nm – 2400 nm		
Stability	0.5 %		
Drift	<0.1% per hour		
Time to stabilize	Approximately 5 Minutes		
Output to bulb	5V DC / 1435 A	5V DC / 970 A	24V DC / 167 A
Bulb life time	1.500 h	10.000 h	2000 h
Characteristic	Focused		
Shutter	TTL max. 5Hz		
DB-15 Connector	PIN 13: TTL; PIN 10: Ground		
Bulb color temperature	2.960 K	2.800 K	3.000 K
Room temperature	5°C – 35°C		
Humidity	5 - 95% at 40°C		
Output	7 W	7 W	20 W
Weight	Approximately 0.5 kg		
Size	58 x 59 x 140 mm		

Pinout Information

Pin	Description	Pin	Description
1	na	9	na
2	na	10	Ground
3	na	11	na
4	na	12	na
5	na	13	TTL Signal – Shutter control
6	na	14	na
7	na	15	na
8	na		
na = not applicable			



Parts List

Spare Parts / Order Information	Catalog Number
Halogen light source with filter holder/shutter and attenuator	HL-2000-FHSA
Halogen light source, fan cooled, long life	HL-2000-FHSA-LL
Halogen light source High-Power with Attenuator and TTL-	HL-2000-FHSA-HP
Halogen spare bulb 2.800K / 10.000 hrs	HL-2000-LL-B
Halogen spare bulb High-Power	HL-2000-HP-B

Bulb Replacement

To order replacement bulbs for the HL-2000-FHSA, please visit OceanInsight.com.



Before replacing the bulb in the HL-2000-FHSA, disconnect the lamp from your power source and allow the unit to cool for at least 20 minutes, if necessary.

Replacing the Bulb

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

NOTE

Do not completely remove the bulb fixture screw. It may be difficult to reinsert it.

5. Disconnect the wires from the connection block.
6. Replace the bulb and reconnect the wires to the connection block.
7. Slide the lamp into the housing and secure with the bulb fixture screw.
8. Slide the electronics board back into the HL-2000-FHSA, taking care to ensure that the wires do not come into contact with the fan blades.

NOTE

The bulb fixture screw is above the fan, behind the blades. Turn the blades, if necessary, to reach the screw.

Unlock the Unknown

Ocean Insight exists to end guessing. We equip humanity with technology and data to make precisely informed decisions providing transformational clarity for human advancement in health, safety, and the environment.

Questions?

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