

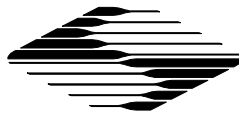
# OPERATION MANUAL

REV. 2.00c (200900522)

# LAMBDA XL

## LIGHT SOURCE

MODEL LB-LS-XL



**SUTTER** INSTRUMENT



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MODEL LB-LS-XL

## OPERATION MANUAL

(REV. 2.00c (200900522))

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The newest lamp from Sutter Instrument Company offers the intensity and spectral range of our popular LS series Xenon arc lamps with exceptional lifetime and stability. This new technology offers 1% peak-to-peak stability, maintained high output over time, and an expected lifetime that is many times that of other technologies.

## Precautions

The light output of the Lambda XL is very intense and when concentrated can cause burns or fire. The Lambda XL is a strong source of invisible UV light.

Keep skin, clothing and anything else that can be damaged by heat or intense light away from the end of the light guide or lamp output port if the light guide is not installed.

Never look directly into the end of the light guide or lamp output port if the light guide is not installed.

The Lambda XL requires clear space on all sides and the top for proper cooling and operation. Do not locate close to any object that might obstruct cooling. Do not place objects on top of the Lambda XL since that might interfere with proper cooling.

***Do not remove power or attempt to turn the unit off within 1 minute of turning the lamp on.*** Once the lamp begins to power up the contents of the emitter must be able to fully vaporize, or the lamp may not turn on properly in the future.

## Set Up

The Lambda XL should be placed on a suitable surface located so that the light guide can easily reach the microscope. Make sure that there is ample room for circulation of air and avoid bending the light guide at sharp angles.

### Installation of the light guide adapter

The Lambda XL uses a 5 mm liquid light guide. In order to protect it against excessive heating, the XL end of the light guide is mounted in a thick sleeve of aluminum, which has an integral heat sink. Insert this bare end of the light guide into the light guide adapter end with the heat sink fins as shown below. The end of the light guide should be roughly even with the end of the adapter. Secure the light guide in the adapter with the setscrew. The other end of the light guide will be connected to the microscope. Please refer to the adapter installation instructions included with the unit.

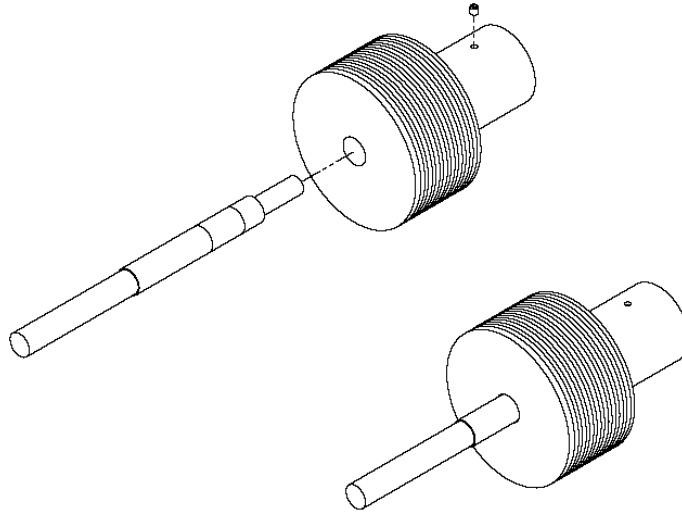


Figure 1. Connecting the liquid light guide with the heat sink.

Insert the light guide and heat sink assembly into the lamp output port as shown below. You will need to remove the small section of the top plate that covers this area in order to access the cap screw that locks the light guide adapter in place.

The light guide is inserted to the depth that produces the highest output from the system. .

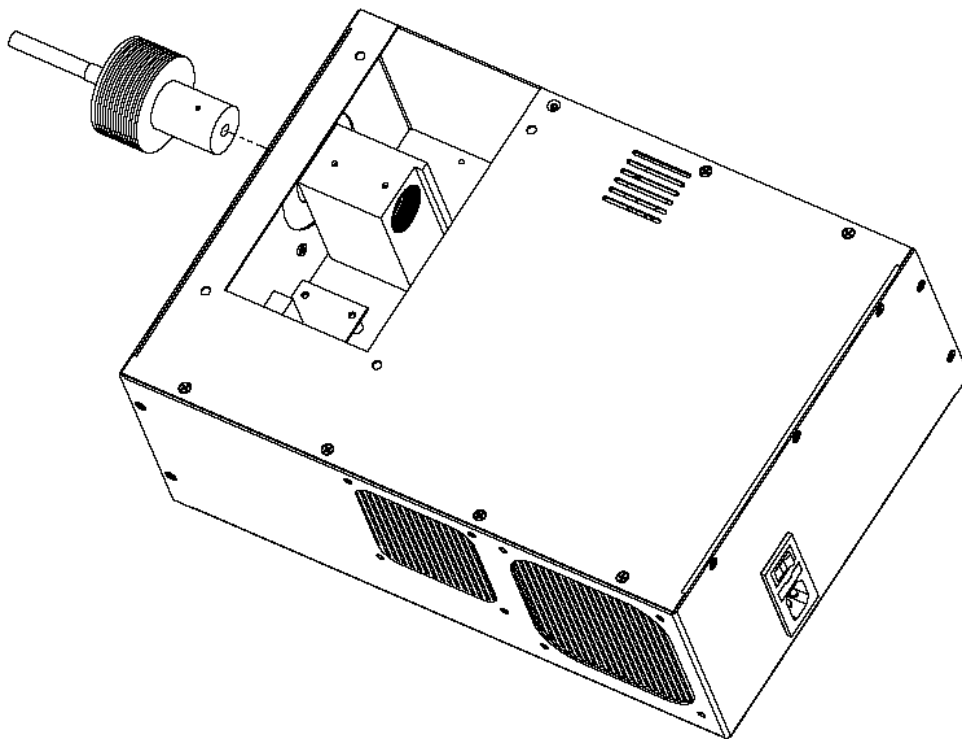


Figure 2. Installing the liquid light guide and heat sink assembly to the Lambda XL.



### Installation of the filter wheel option

**NOTE 1:** Please refer to the instructions from the filter manufacturing company before installing the filters in the filter wheel. When the filter wheel is installed in the Lambda XL, the motor side faces the light.

**NOTE 2:** The bulb used in the Lambda XL has a high output in the UV-VIS spectral region. Some filters, especially those in the near UV range, contain components with strong absorption in the visible and can be damaged by the high output of the bulb. To avoid this problem, we recommend the use of hard coating filters and, for the near UV region, the use of filters that have protective reflective layers.

The Lambda XL was designed to allow a 25 mm Sutter Instrument filter wheel with *SmartShutter* to be mounted inside the cabinet. The mounting location for the wheel is in a collimated portion of the light path. The space between collimating and focusing lenses could not be made large enough to accommodate a stock wheel with shutter without excessive loss of light output. The wheel and shutter combination can fit if the standard dual slide-in-filter housing is replaced with a housing that accepts only one slide-in filter.

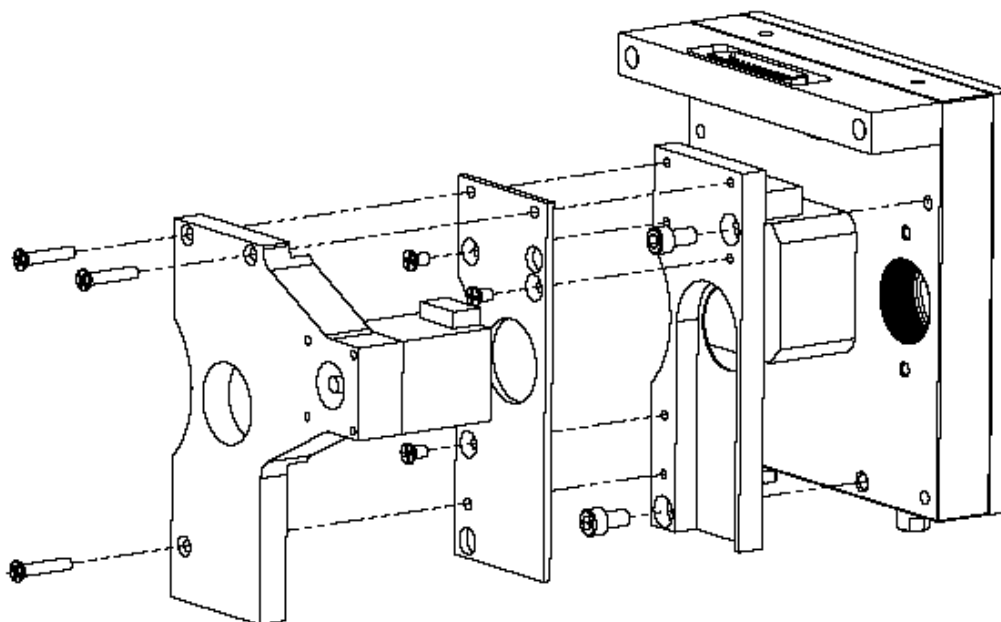


Figure 3. Filter wheel and SmartShutter assembly.

Once the dual slide in housing has been replaced by the single filter housing, the rod holding brackets (ears) should be removed from both sides of the filter wheel. Attach the small locating rods to the filter wheel on one side using the tapped holes that held the mounting screws for the rod holding ears.

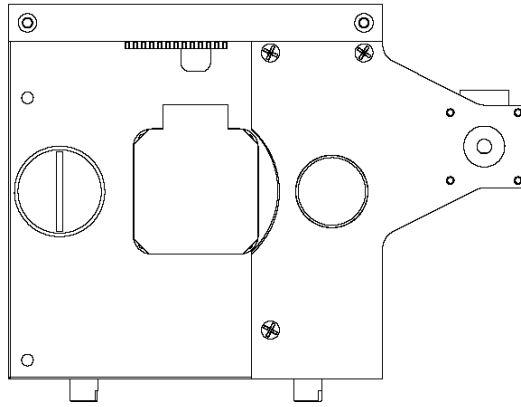


Figure 4. Filter wheel-housing alignment for attachment to access plate.

Attach the access plate from the cabinet top and the handle to the filter wheel using the tapped holes that mounted the other rod holding bracket. Once you have installed any filters, you can mount the wheel in the lamp taking care to be sure that the locating rods on the bottom of the wheel insert in the locating holes on the bottom of the unit.

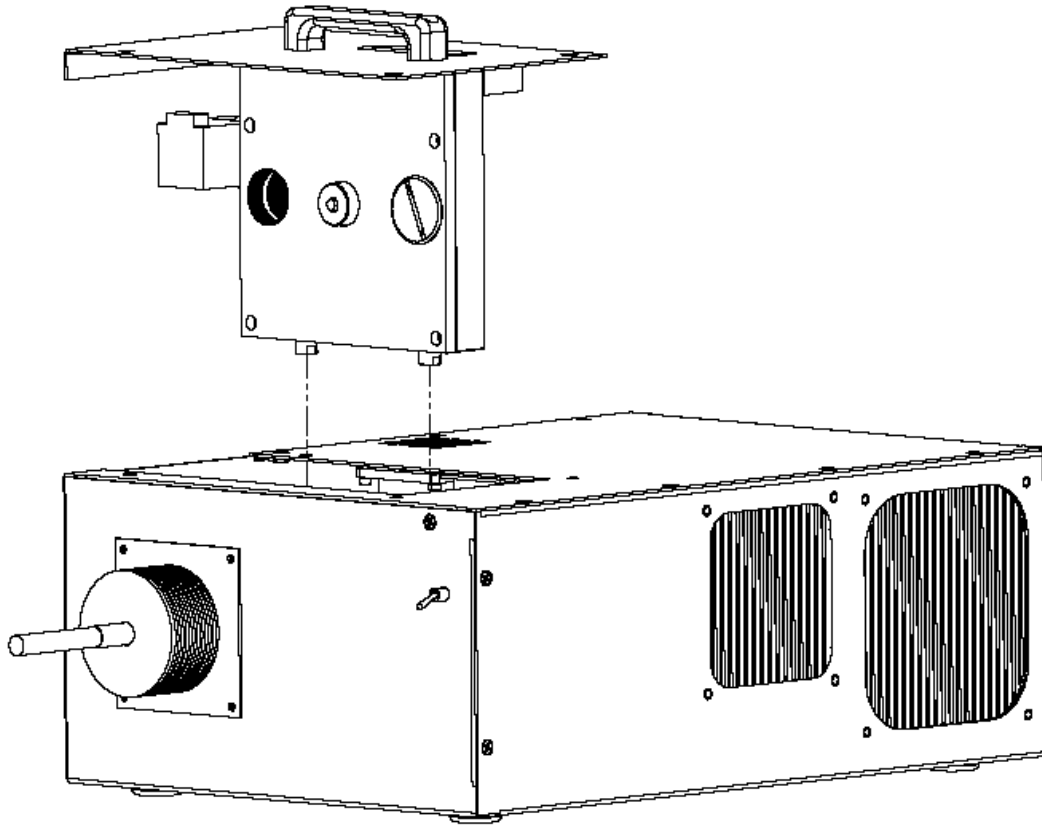


Figure 5. Installing the filter wheel with access plate into the Lambda XL.

Once the wheel is in place, it can be secured by screws that thread into the locating rods from under the unit. A couple of flat washers are needed on each screw are needed to lock the wheel in place.

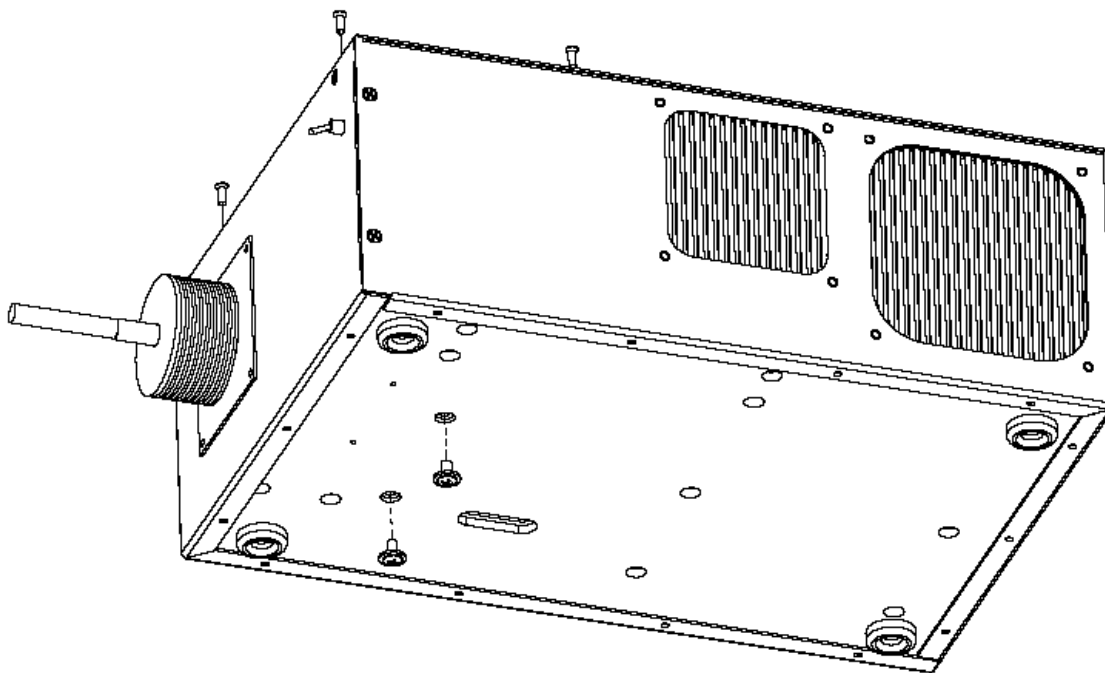


Figure 6. Securing the installed filter wheel's locating rods on the underside of the unit. Finally, secure the top cover in place with four screws.

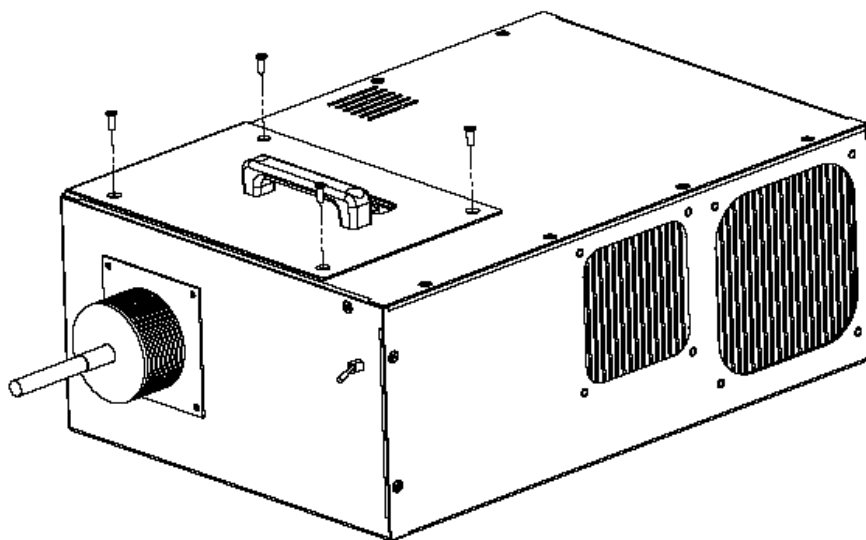


Figure 7. Securing the top cover of the filter-wheel access plate.

## Operation

It is critical to insure that all cooling vents are free from obstructions before operating the unit. These ports are shown in the figure below. Air is drawn in from the top port and the large single grill on one side. The two grills located on the side opposite to the large intake port are exhaust ports. It is important to avoid having warm air drawn in through the input ports. It follows that you must avoid any location that would allow warm exhaust air to be drawn back in the cooling intake ports.

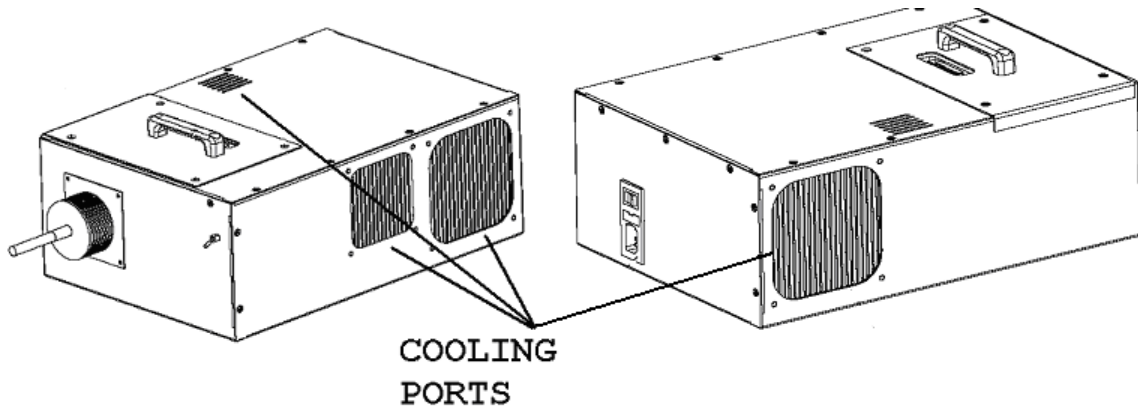


Figure 8. Cooling port locations.

Before connecting the unit to power, make certain that the lamp switch (1) is set to off. (see figure below)

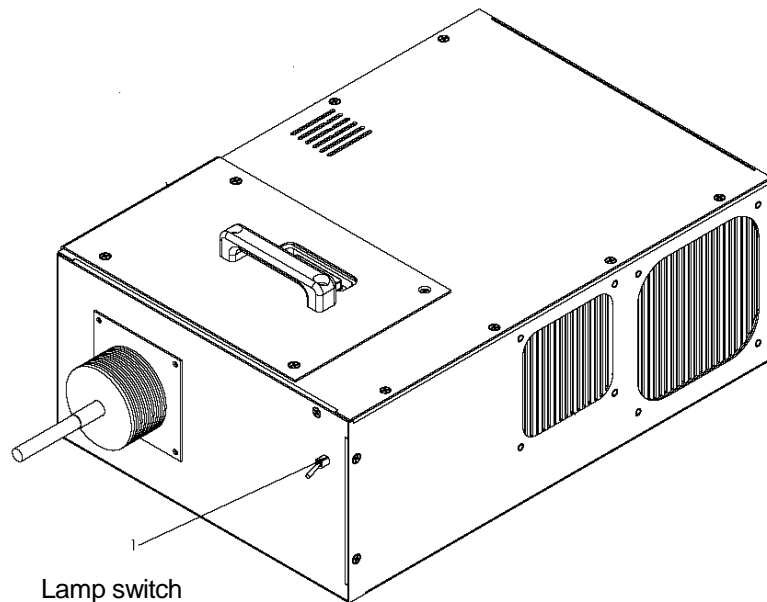


Figure 9. Lamp switch location.

Make certain the line voltage power switch is off. Insert the power cord into the power entry module on the rear panel of the unit. Note that this is also the location of the line voltage

switch and the line fuse. The lamp power supply will operate on 50 or 60 Hz, and 110 –250 VAC.

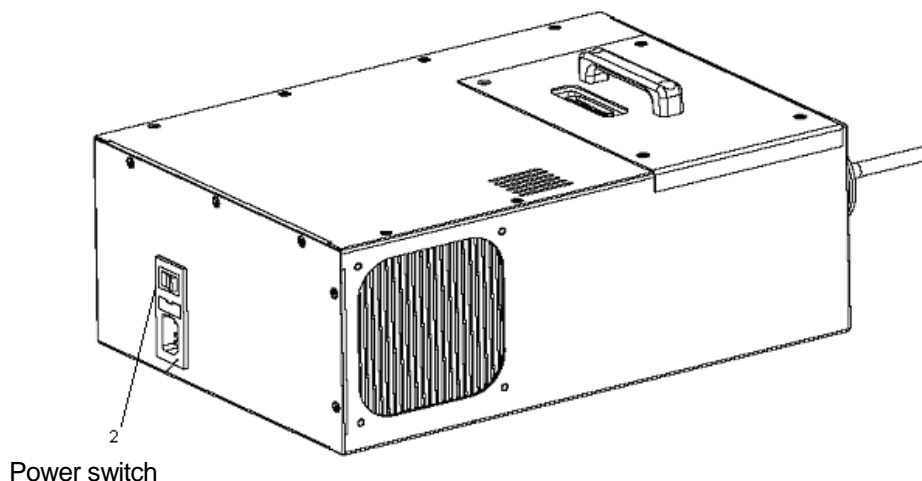


Figure 10. Power switch location.

Turn on the power switch (2). Allow a few seconds for the fans to turn on at full power, then turn on the lamp switch (1).

***WARNING:*** *To avoid damaging the bulb, leave the bulb on for at least one minute before turning it off.*

To turn off the unit, turn off the lamp switch (1) first. Leave the power on for as long as necessary to allow the unit to cool down, then turn off the power switch (2).