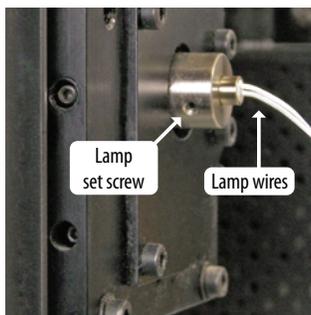


## Lamp Replacement and Alignment

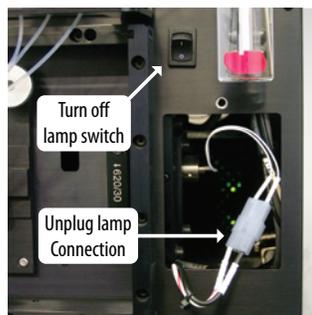
The KinExA® light source is a quartz incandescent halogen lamp with an average life of 1200 hours. Lamp replacement is necessary when the lamp no longer emits light or when significant signal drift or flickering becomes noticeable. Proper lamp alignment provides optimal performance. An EPM (Excitation Power Monitor Part #: 800507) is recommended to ensure proper lamp alignment.

### Lamp Replacement:

- Turn the lamp off. Remove the two thumbscrews and lamp access door. Observe the two white wires leading to the back of the lamp in the lamp housing.
- Loosen (DO NOT REMOVE) the set screw on the lamp holder (see **Figure 1**) with the 1.5 mm ball driver from the KinExA accessories kit. Grasp the white wires attached to the lamp and slide the lamp from the holder. Disconnect the electrical connection and remove the expired lamp through the lamp access door (**Figure 2**).  
**Note:** Be careful not to touch the stainless steel lamp casing because it may be hot.
- Plug in the new lamp and insert into the holder.  
**Note:** Do not tighten the set screw.



**Figure 1.** Loosen the set screw and pull the old lamp out by the wires.



**Figure 2.** Turn off the lamp and unplug the lamp connectors.

If you have an EPM, refer to the EPM alignment instructions. Otherwise, skip to the manual alignment instructions.

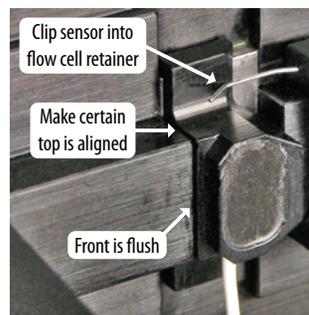
### EPM Alignment:

- Plug the sensor into the EPM unit (**Figure 3**), then unclip the flow cell and move it out of the way.

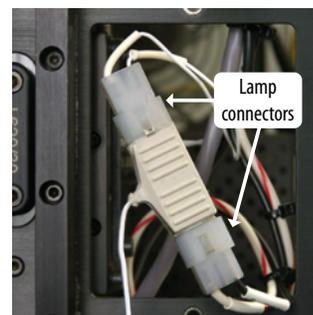


**Figure 3.** Plug the sensor into the EPM.

- Make sure the sensor has a light coating of dielectric grease and then clip it into the flow cell retainer. Look at the sensor top and front to make certain it is properly aligned (**Figure 4**).
- Be sure the lamp switch is turned off, then plug the EPM electrical connector into the lamp connection, then turn the lamp on (**Figure 5**).  
**Note:** It is important to use the lamp switch to power the EPM on or off.



**Figure 4.** Clip the sensor into place using the flow cell retainer.

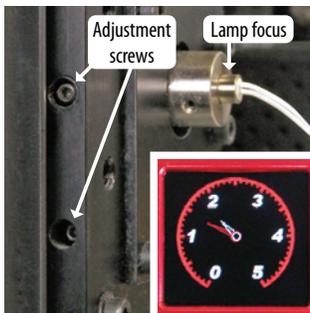


**Figure 5.** Plug the EPM connector into the lamp connectors.

- Move the lamp in and out, by grasping the white wires, until the maximum signal is found and tighten the set screw. Then, manipulate the adjustment screws (**Figure 6**) to further maximize the signal. The red needle indicates the current reading while the white holds the highest reading (**Figure 6**). Repeat these adjustments until no further improvement can be made.

**Note:** Use the white wires to focus the lamp because the lamp casing can become hot.

- (Optional) Press “Select,” choose “Save,” and then fill in the information to keep a record of lamp replacements and power levels (**Figure 7**).
- When finished, turn off the lamp switch to shut the EPM down and unplug the EPM connectors before reconnecting the lamp connectors.
- Replace the lamp access door and secure the two thumbscrews.



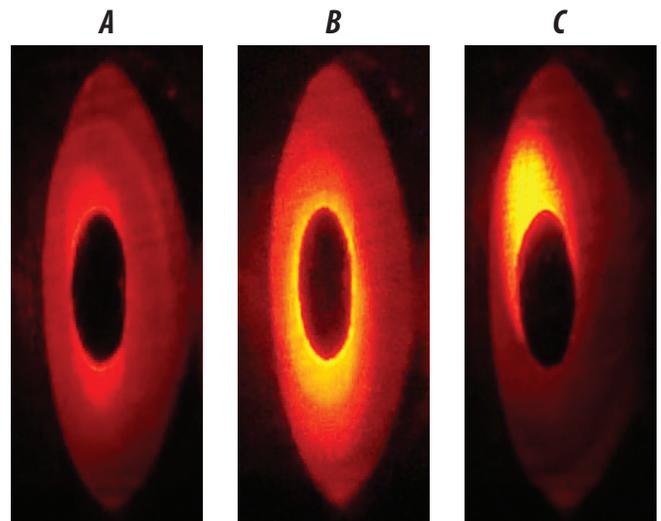
**Figure 6.** Adjust the screws and lamp focus to maximize the signal.



**Figure 7.** Save the information to keep a record of lamp replacements and power levels.

### Manual Alignment:

- Turn the lamp on.
- Look through the lamp alignment window (located to the left of the excitation filter), and adjust the lamp focus back and forth until the excitation light going through the pinhole in the alignment window is maximized. In proper focus, the bright spot is the smallest in diameter, indicating that the majority of light is passing through the opening (**Figure 8**). Tighten the set screw with the 1.5 mm balldriver to secure the lamp.  
**Note:** Use the white wires to focus the lamp because the lamp casing can become hot.
- Use the 2.0 mm balldriver from the KinExA accessories kit to manipulate the adjustment screws located to the left of the circular lamp holder (see **Figure 6**) until the least amount of light appears around the black pinhole (see **Figure 8**). The upper adjustment screw provides horizontal alignment and the lower adjustment screw provides vertical alignment. After proper alignment, replace the lamp access door by securing the two thumbscrews.



**Figure 8.** Proper (A) and improper (B,C) lamp alignment. Proper alignment (A) is apparent by a small diameter bright spot and the visible portion of light being dim. Improper alignment can include a focus error, an alignment error or both. Improper focus (B) shows a large diameter bright spot. Improper alignment (C) has a small bright spot appearing above, below, or on either side of the opening.