

Changing the Deuterium Lamp and Alignment on ICE 3400/3500/M6 MK2

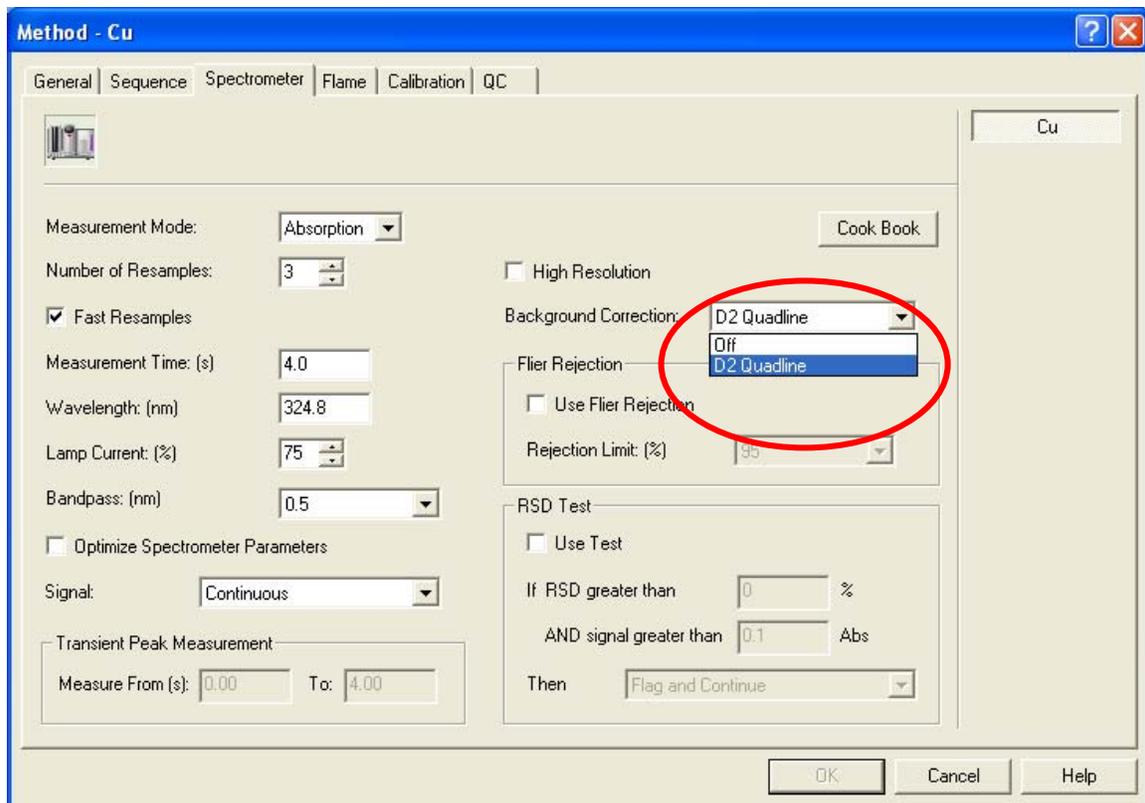
The Deuterium (D2) lamp is located under the Deuterium Lamp Cover, on the top of the Spectrometer, behind the Lamp Compartment.

The D2 Lamp should not normally require routine alignment. However, if you have replaced the lamp, or if you suspect that the Quadline Background Correction accuracy is poor, you should align the lamp.

To align the Deuterium Lamp:

1. Install a suitable hollow cathode lamp.
2. Ensure that the Quadline background correction is selected, and perform an Optical Setup.

Choose an element whose principle line is between 350 – 200nm.



The screenshot shows the Thermo SOLAAR software interface. The main window displays a table of results for Cu analysis. The Spectrometer Status - Cu window is open, showing the following data:

Wavelength (nm)	PMT Voltage (V)	Absorbance (A)
324.0	160	-0.001

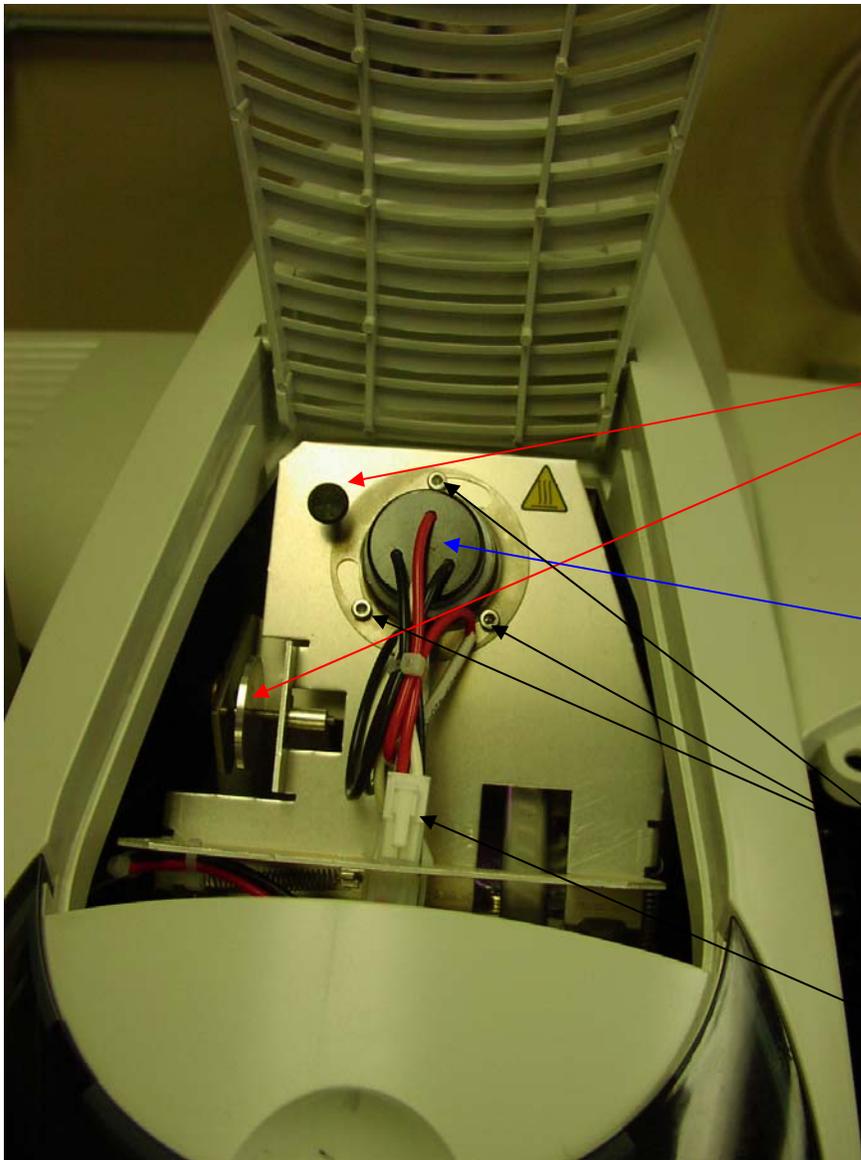
The bottom status bar shows the following parameters:

- Furnace Phase: ON
- Temperature (°C): 0
- Time (secs): 0.0
- Inner Gas Flow: 0 L/min
- Type: 2
- Cuvette Firings: 8
- Autosampler Status: Not Present
- Flame: ON
- AIR-C2H2: Gas Flow 0.0 L/min
- Burner: 50 mm
- Height: 7.0 mm
- Gas Pressures: Air, Acetylene, Nitrous Oxide

Once the Optical setup is done proceed to next step.

3. Use the Spectrometer Status Window to see the optical status like above. The D2 lamp % energy bar will be live.

4. Open the D2 Lamp cover.



Adjustment Controls

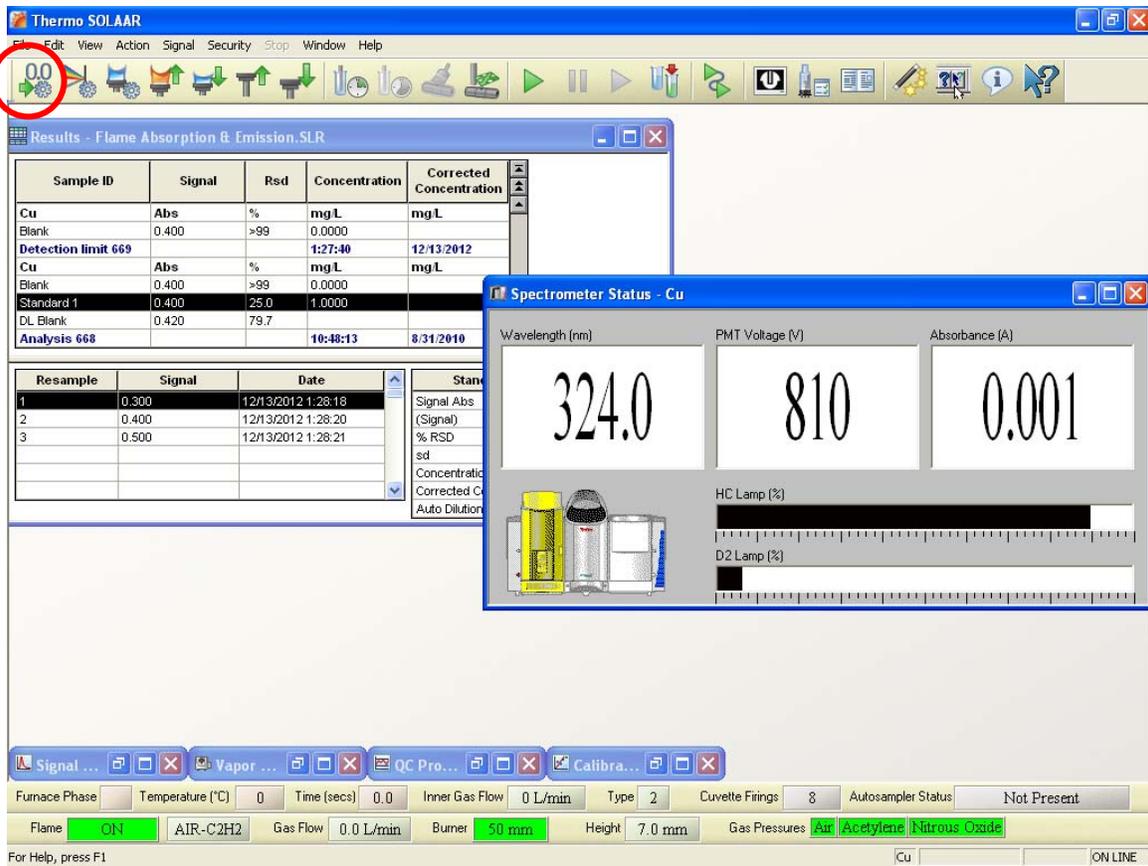
Lamp base

Securing bolts

Plug Socket attached to lamp cable

5. Adjust the D2 lamp controls to obtain the maximum D2 Energy shown on the bar graph.

- If the D2 Energy bar Graph goes off scale (RED bar), use the Auto Zero command to bring it back to the center of the scale.



6. Perform a final Optical Setup, and confirm that the Optical setup is completed correctly, and that no errors or warnings are displayed.

Deuterium Lamp Replacement

The Deuterium Lamp will eventually reach the end of its useful life. You should suspect this if:

- The lamp fails to strike
- Your zero absorbance baseline drifts when Quadline Background Correction is selected.
- You get repeated warnings that the intensity of the Deuterium Lamp is Low.

If your Deuterium Lamp has reached the end of its life, you can replace it.

To replace your Deuterium Lamp:

1. Ensure that the Spectrometer is disconnected from the mains electricity supply, and has been switched off for at least 15 minutes, to allow the lamp to cool.
2. Open the Deuterium Lamp Cover

3. Disconnect the Lamp plug socket/cable.
4. Slacken the lamp securing bolts with a suitable Allen Key.
5. Rotate the lamp slightly anti-clockwise, and then withdraw it from the mount.
6. Remove the new lamp from its packaging.

WARNING: Be very careful not to touch the quartz envelope of the lamp

7. Fit the new lamp into the mount.
8. Rotate it slightly clockwise, and then tighten the Lamp Securing Bolts.
9. Connect the Lamp cable to the socket.
10. Align the new lamp as described above.

Deuterium Lamp is part number 942342030004