

## ***Lambda 465 Water Jacketed Automatic Referencing Stage Installation Instructions***

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This instruction sheet describes the installation of this accessory which is used with the Lambda 465 Spectrophotometer.

**NOTE:** *Read these instructions before you install this accessory.*

### ***Contacting PerkinElmer***

Supplies, replacement parts, and accessories can be ordered directly from PerkinElmer, using the part numbers.

See our website:

<http://perkinelmer.com>

PerkinElmer's catalog service offers a full selection of high-quality supplies.

To place an order for supplies and many replacement parts, request a free catalog, or ask for information:

If you are located within the U.S., call toll free 1-800-762-4000, 8 a.m. to 8 p.m. EST. Your order will be shipped promptly, usually within 24 hours.

If you are located outside of the U.S., call your local PerkinElmer sales or service office.

### ***Features***

- Easy to install
- Suitable size for standard cells
- Controls the temperature by circulation of liquid
- Possible to use with Magnetic Stirrer Assembly
- Excellent durability



**Figure 1** Lambda 465 Water Jacketed Automatic Referencing Stage [P/N: N4104013]

## *Dimensions and Specifications*

Physical Characteristic	Specification
Outline (mm)	78.5(H) X 88(W) X 155(D)
Inner (mm)	27.5(H) X 12.5(W) X 12.5(D)
Space between cells (mm)	1
Moving distance of one cell (mm)	13.6
Moving time of one cell (sec)	0.5
Weight (Kg)	1.16

## *Description*

### *Connectable Cells*

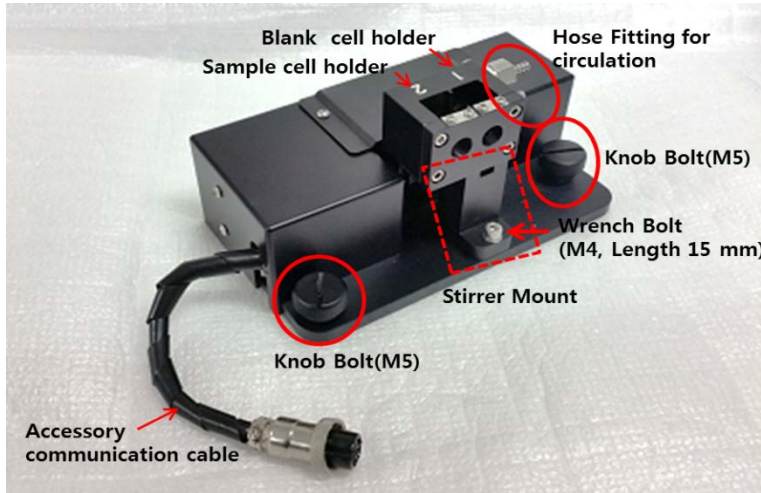
Description
Precision cell, 10 mm light path, Quartz, 3500 $\mu\text{l}$ , ea
Flow-through cell, 10 mm light path, Quartz, 420 $\mu\text{l}$ , ea
Flow-through cell, 10 mm light path, Quartz, 720 $\mu\text{l}$ , ea
Semi-Micro cell, 10 mm light path, Quartz, Self-masking black side walls & base, 1400 $\mu\text{l}$ , ea
Micro cell, 10 mm light path, Quartz, Self-masking black side walls & base, 700 $\mu\text{l}$ , ea
Precision cell, 10 mm light path, Quartz with stopper, 3500 $\mu\text{l}$ , ea

Other cells are available upon request if what you want is not listed.

### *Environmental Conditions for Operation*

Specification	Comment
RT ~ 100 °C	Controls the temperature using Circulator

**Configuration of the Water Jacketed Automatic Referencing Stage**

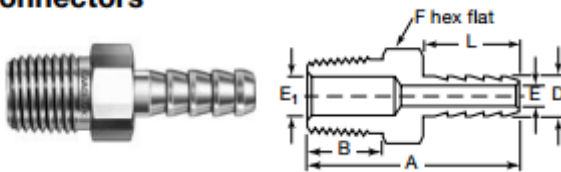


**Figure 2 Lambda 465 Water jacketed Automatic Referencing Stage (ARS)**

**Hose fitting for circulation information**

**Male Connectors**

**NPT**



Hose fitting Dimensions (inches)

A	B	D	E	E <sub>1</sub>	F	L
1.08	0.38	0.15	0.08	0.19	7/16	0.40

**NOTE:** The recommended tube size and material are 3 mm-ID and 6 mm-OD silicon tube which has thermal resistance at higher than 100°C

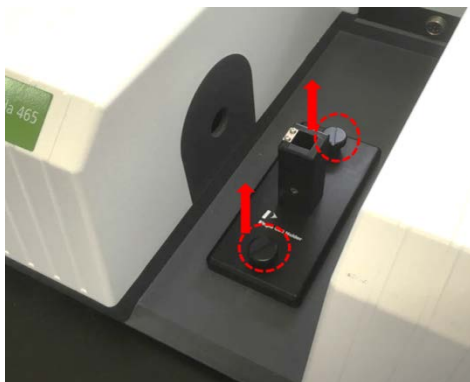
**Figure 3 Hose fitting, Model No: [Swagelok] SS-2-HC-1-2, Material: 316 Stainless Steel (2 ea)**

Base Plate	Flat Head Cap Screw
	<p>Fix the base plate Flat Head Cap Screw M5, Length 12 mm, 2 ea</p>

**Figure 4 Water jacketed automatic referencing stage component**

## Installation

1. Remove the existing cell holder.



**Figure 6** Removing the cell holder

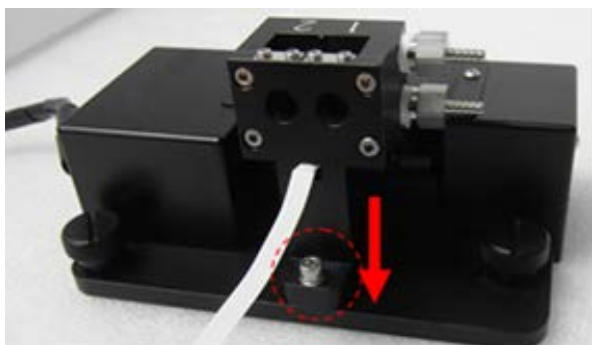
2. If the magnetic stirrer used, disassemble the stirrer mount by using M4 wrench and then place the Magnetic Stirrer Head (refer to the Mag stirrer accessory manual for more details).



**Figure 7** Placing the Magnetic Stirrer Head on the Stirrer Mount

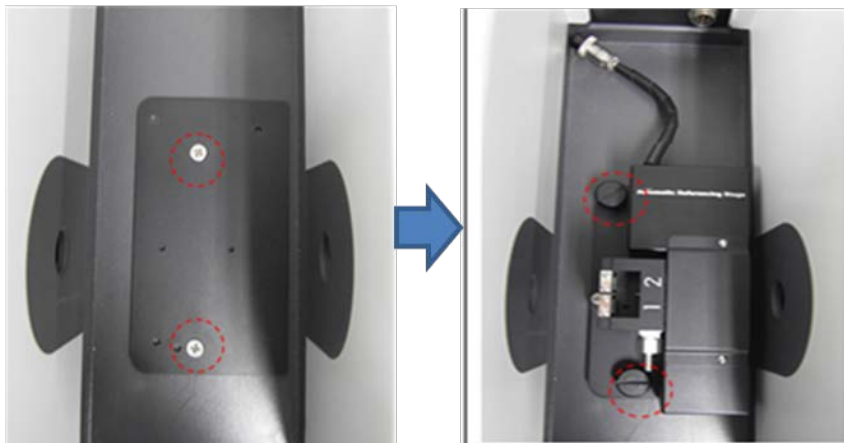
**NOTE:** M4 wrench is not included in Water Jacketed Automatic Referencing Stage (ARS).

3. Attach the stirrer mount with a wrench bolt to the Water Jacketed Automatic Referencing Stage (ARS) and tighten the cell holder.



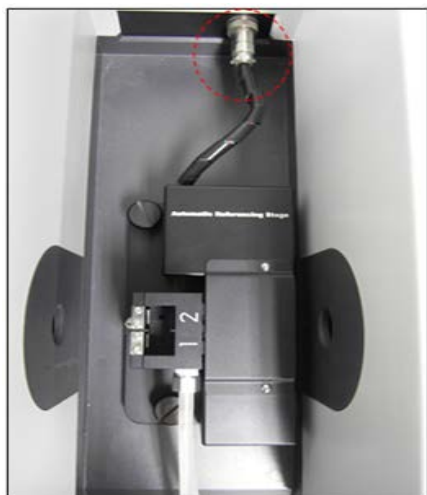
**Figure 8** Attaching the stirrer mount

- Place the base plate in the bottom of the sample compartment and tighten the flat head cap screws. Place the Water Jacketed Automatic Referencing Stage (ARS) on the base plate and tightens the holder with the knob bolts.



**Figure 9 Installing the Water Jacketed Automatic Referencing Stage**

- Connect the Water Jacketed Automatic Referencing Stage (ARS) to the accessory port using the accessory communication cable and then connect the hose to the hose fitting.



**Figure 10 Connecting the Water Jacketed Automatic Referencing Stage to the accessory port**

**NOTE:** *Hose is not included in Water Jacketed Automatic Referencing Stage (ARS). Hose is required to prepare separately.*

- Connect the communication cable and the power cord, and then turn on the power of the Lambda 465.

## ***Measurement***

**NOTE:** *Start the sample measurement after warming up the system for at least 20 minutes.*

- Launch the **UV Lab** software. When the following window appears, select **Experiment Type** and click **OK**.

New

Title: Untitled-1

Comment: ARS test

Sample Name: Sample

Experiment Type: Wavelength Monitoring

OK

Cancel

2. Select Referencing Stage. Refer to UV Lab Software Users Guide for more details of the parameter setting and click **OK**.

Method - C:\UV Lab\Default.mtd

Experiment Type: Wavelength Monitoring

Open Save

**Experiment Setup**

Data Type: Absorbance

Sampling: Referencing Stage

Mode: Faster

Spectra No.: 1

Scan No.: 10

Integration No.: 1

**Baseline Correction**

**Wavelength Monitoring**

Monitoring Wavelength...

Save as Default OK Cancel

3. Click the red-marked icon in the **Experiment Setup** on the main screen of the software when you want to change the parameters about the Water Jacketed Automatic Referencing Stage (ARS).

**Experiment Setup**

Method: Default.mtd

Accessory Type: Referencing Stage

Baseline Correction: No

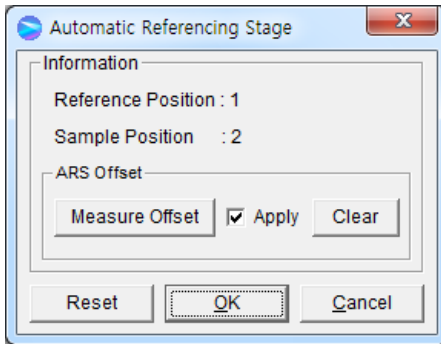
Mode: Faster

Spectra No.: 1

Scan No.: 10

Integration No.: 1

4. The Automatic Referencing Stage (ARS) window will appear.

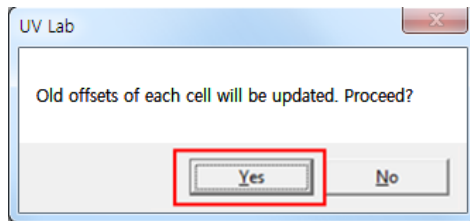


Information for cell position

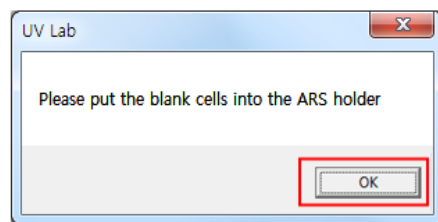
**Reference Position:** Place the blank in No.1 position of the Water Jacketed Automatic Referencing Stage (ARS).

**Sample Position:** Place the sample in No.2 position of the Water Jacketed Automatic Referencing Stage (ARS).

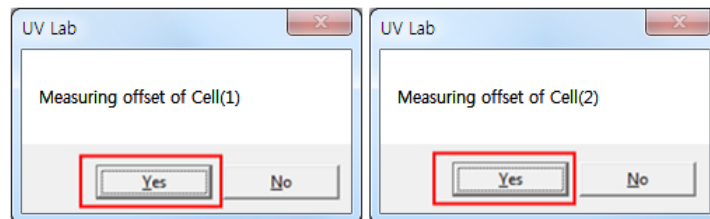
- **Measure Offset:** Offset is a function that corrects the transmittance difference between each cell.
- a. Select **Measure Offset**. The following message will appear. Select **Yes**.



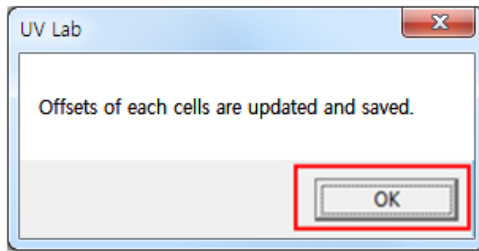
- b. The following message will be shown. Put the blank cells into the reference position and sample position of the cell holder or empty the cell holder. Select **OK**.



- c. Measuring offset of cell will start. Select **Yes** for measurement at each position one by one.



- d. The following message will be shown when the measuring offset is finished. If you want to save the offset data, select **OK**.

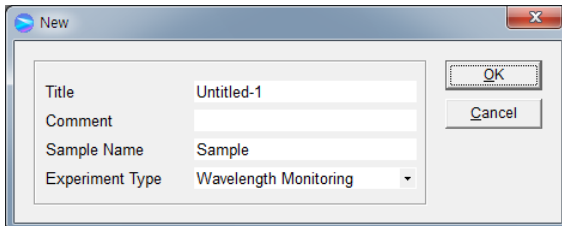


- **Apply:** Apply the offset values.
  - **Clear:** Remove the saved offset data
  - **Reset:** Use for formatting the Water Jacketed Automatic Referencing Stage (ARS).
5. Place the blank cell in the No.1 position and sample cell in the No.2 position.
  6. Measure Blank and Sample.

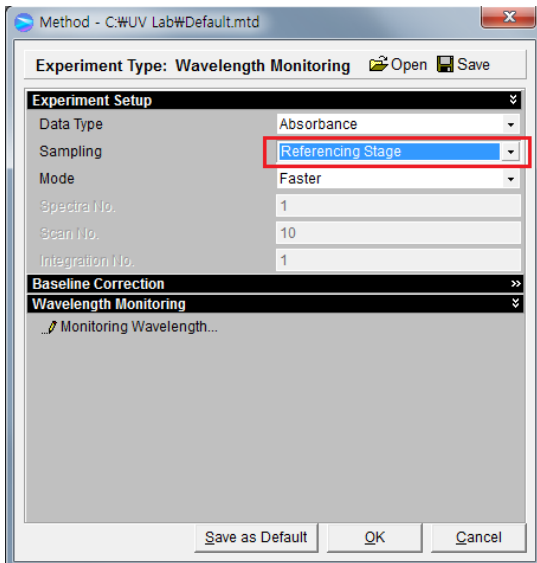
## ARS Calibration

Calibrate the beam position of the Water Jacketed Automatic Referencing Stage (ARS) when the Water Jacketed Automatic Referencing Stage (ARS) is installed for the first time or beam position is incorrect.

1. Execute the **UV Lab** software and select **OK**.

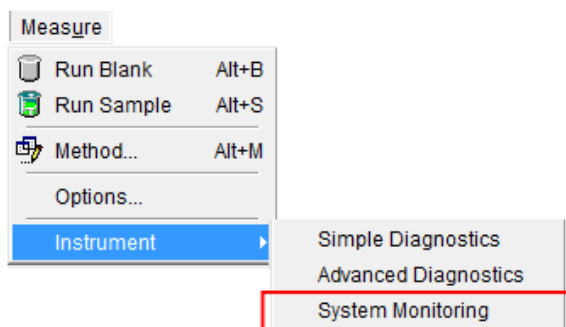


2. Select Referencing Stage and click **OK**.

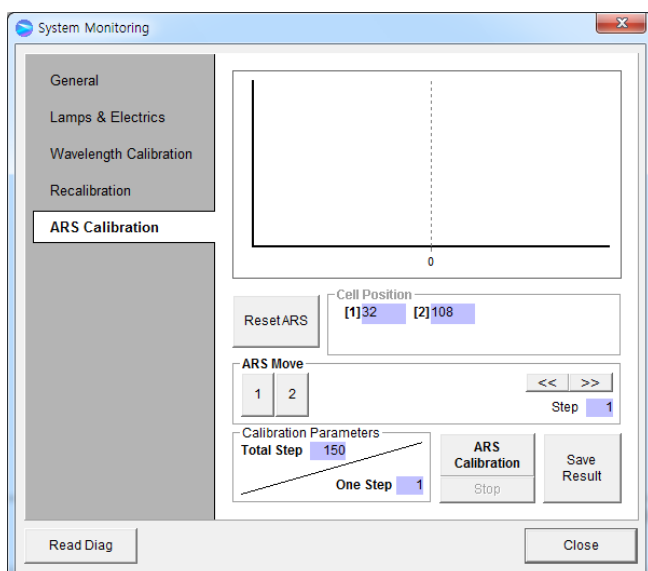



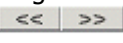


3. Click **OK**. Select the **System Monitoring** as follows.

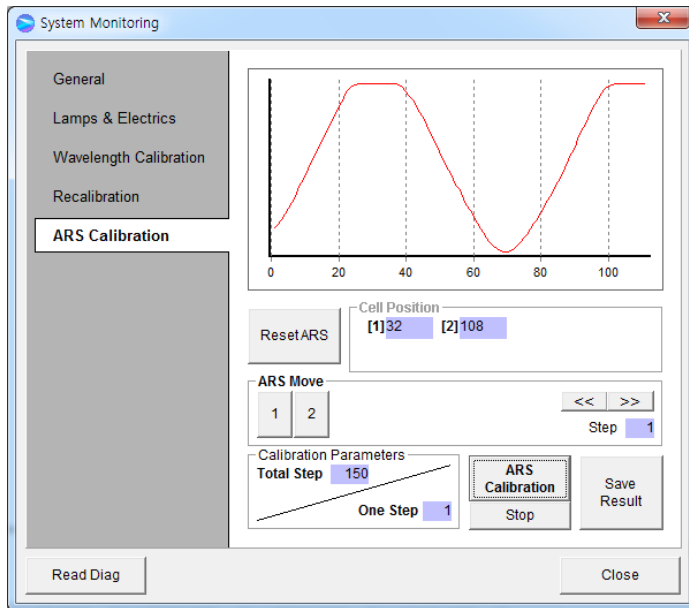


4. Select **ARS Calibration in System Monitoring** and the functions of the ARS Calibration are shown as follows.

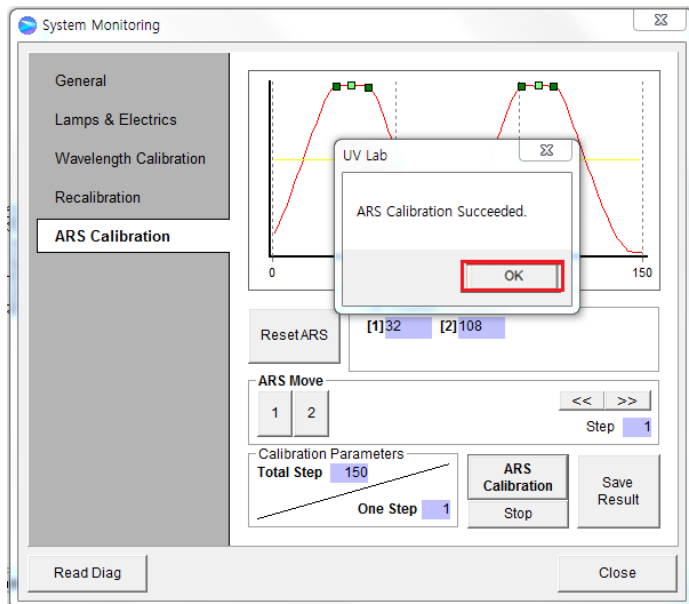


Command	Function
<b>Reset ARS</b>	Use to move to '0' step of ARS position.
<b>Cell Position</b>	Show the saved steps about each cell position of the ARS.
<b>ARS Move</b>	<ul style="list-style-type: none"> <li>Used for moving ARS position as clicking  buttons.</li> <li>Used for moving ARS position using  buttons by entered step.</li> </ul>
<b>Calibration Parameters</b>	<ul style="list-style-type: none"> <li>Total Step: Shows the total steps (150) of the operating ARS.</li> <li>One Step: Shows the unit of the operation of the ARS step.</li> </ul> Note: Do <b>not</b> change the default value.
<b>ARS Calibration</b>	Used to perform the ARS Calibration.
<b>Stop</b>	Used to stop the ARS Calibration.
<b>Save Result</b>	Use to save the calibrated result.

5. Select **Reset ARS** to format the ARS steps.
6. Select **ARS Calibration**. The "Proceed after Removing all of your cell from ARS." message box will be appeared. Remove all cells from the ARS. Select **OK**.
7. ARS calibration will be started. The current calibration process will be shown in main window.



8. When the calibration is finished, the following box appears. Select **OK**.



9. Select **Save Result** to save the result.

## *Troubleshooting*

### *When liquid leakage occurs*

1. **When liquid is leaking between the hose fitting and the Water Jacketed Automatic Referencing Stage (ARS).**

Turn the hose fitting counter clockwise to detach from the Water Jacketed Automatic Referencing Stage (ARS).

Remove the Teflon which is wound around the hose fitting. Wind around a new length of Teflon tape.

Turn the hose fitting clockwise to attach to the Water Jacketed Automatic Referencing Stage (ARS).

2. **When liquid is leaking between the hose fitting and the tube.**

Replace the tube.

The replaced tube should be able to withstand a temperature at least 10°C higher than the experimental temperature.

Firmly fix the tube by winding Teflon tape around the connection.

3. **When liquid is leaking from the Water Jacketed Automatic Referencing Stage (ARS).**

Contact your PerkinElmer service representative since the Water Jacketed Automatic Referencing Stage (ARS) needs to be replaced.

### *When constant temperature is not maintained*

1. **Check if the circulator is working normally.**

Check if the temperature is maintained normally in the circulator.

Check if liquid is transferred normally to the Water Jacketed Automatic Referencing Stage (ARS) through the tube.

2. **Check the tube connection.**

Check if the tube is connected tightly.

### *When the tube frequently becomes detached*

1. **Replace the tube.**

You should replace the tube as it is old.

The replaced tube should be able to withstand a temperature at least 10°C higher than the experimental temperature.

- 2. Fix with Teflon tape.**

Firmly fix the tube by winding Teflon tape around the connection.

***When the Water Jacketed Automatic Referencing Stage (ARS) does not move***

- 1. Check the Accessory communication cable.**

Check if the accessory port and Water jacketed Automatic Referencing Stage (ARS) is connected by accessory communication cable.

***When the intensity value is low***

- 1. Recalibrate the Water Jacketed Automatic Referencing Stage (ARS).**

Recalibrate if the light path doesn't go through the center of the Cell Holder.

- 2. Replace the lamp.**

If the intensity value is still low after recalibration, the lamp will need replacing. Contact your PerkinElmer service representative to replacing the lamp.

***When the Water Jacketed Automatic Referencing Stage (ARS) does not reset***

If resetting fails, the photo interrupter switch inside Water Jacketed Automatic Referencing Stage (ARS) will need to be replaced. Contact your PerkinElmer service representative.