

FL 6500/8500 Microplate Reader Installation Instructions

This instruction sheet describes the installation of this accessory which is used with the FL 6500/8500 Fluorescence Spectrometer.

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

- Plug-n-play accessory
- Measure samples in any plate format (Default: 96 or 384 well)
- Create new plate formats graphically and interactively



Figure 1 Microplate Reader and cover (P/N: N4201024)



PerkinElmer, 710 Bridgeport Avenue,
Shelton, CT 06484-4794, U.S.A

Produced in the USA.

Dimensions and Specifications

Physical Characteristic	Specifications
Microplate Reader Dimensions (mm)	218(W) x 340(D) x 290(H)
Microplate Reader Weight (Kg)	4.2
Microplate Reader Cover (mm)	259(W) x 430.5(D) x 331(H)
Microplate Reader Cover Weight (Kg)	4.25

Available Microplates

Physical Characteristic	Specifications
The number of Wells	Default: 96 or 384 and customize available
Microplate Size (mm)	85.4 x 127.6

Configuration of the Microplate Reader

- Microplate Reader



Figure 2 Microplate Reader

- a. Microplate fixing jig
- b. X and Y axis stage
- c. Microplate Reader fixing bolt
- d. Collimator Lens Holder (Emission)

- e. Collimator Lens Holder (Excitation)
- f. Collimator Lens Holder (Sample)
- g. Optical Fiber
- h. M1 Cable
- i. M2 Cable
- j. Pogo Pin Bracket
- Cover for Microplate Reader



Figure 3 Microplate Reader Cover

- Two cradles for the Microplate Reader



Figure 4 Cradles

Installation

1. Prepare the FL 6500/8500 Fluorescence Spectrometer to install this accessory.
2. Connect the instrument power cord and the communication cable.
3. Loosen the accessory fixing bolt and remove the existing sample accessory.

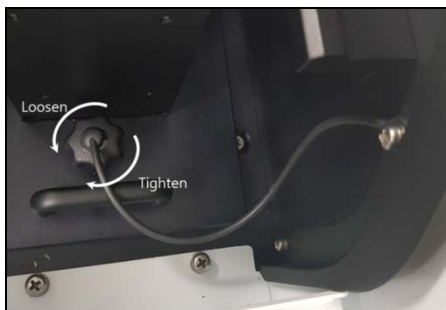


Figure 5 Loosening the accessory fixing bolt

4. Pull out the cell holder by hand.

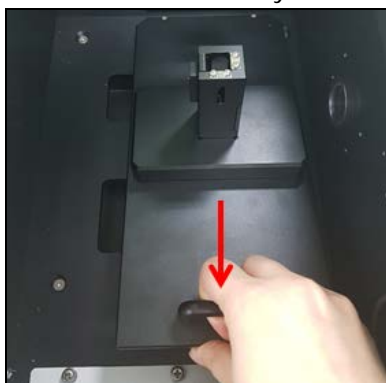


Figure 6 Pulling out the cell holder

5. Remove the existing front cover of the FL 6500/8500 using a screwdriver.

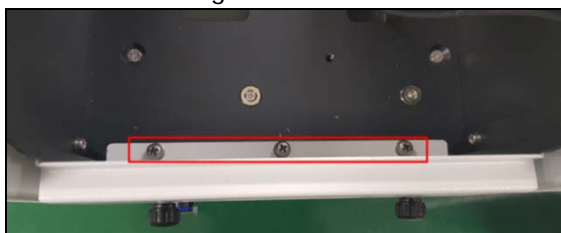


Figure 7 Front Cover

6. Place the front cover of Microplate Reader and fasten the three bolts using a screwdriver.

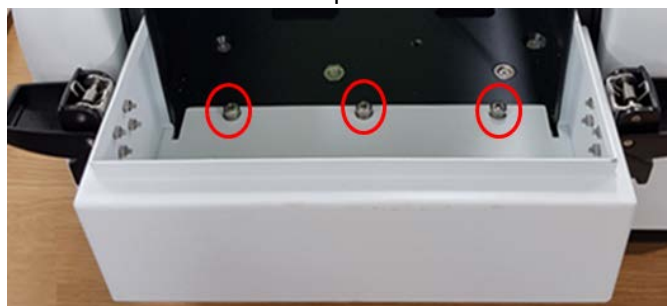


Figure 8 Front Cover of Microplate Reader

7. Undo the four screws which attach the Hinge Guide to the sample compartment lid.



Figure 9 Remove the Hinge Guide

8. Undo the four screws which attach the sample compartment lid to the FL 6500/8500.



Figure 10 Remove the sample compartment lid

9. Tighten the four screws that secure the cover of the plate reader to the FL 6500/8500.

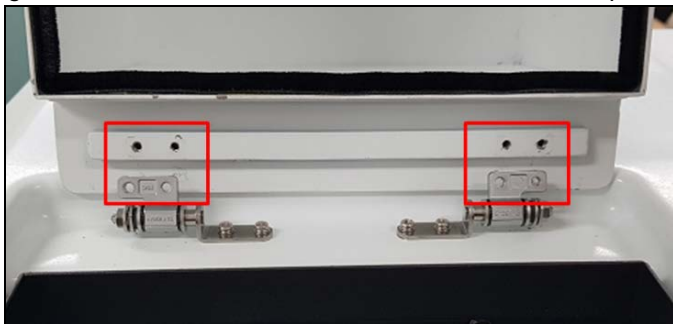


Figure 11 Cover for the Microplate Reader

10. Attach the Microplate Reader cradles to the sample compartment.

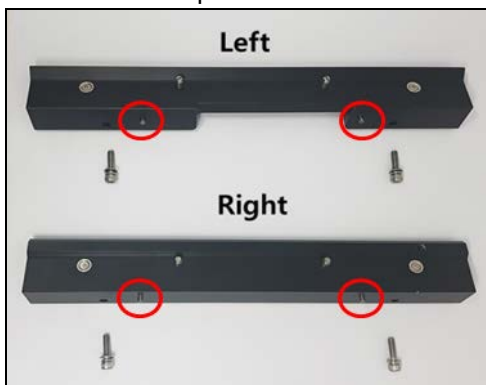


Figure 12 Cradles of the Microplate Reader

11. Fix the M4 bolts under the cradles using a 3 mm wrench.

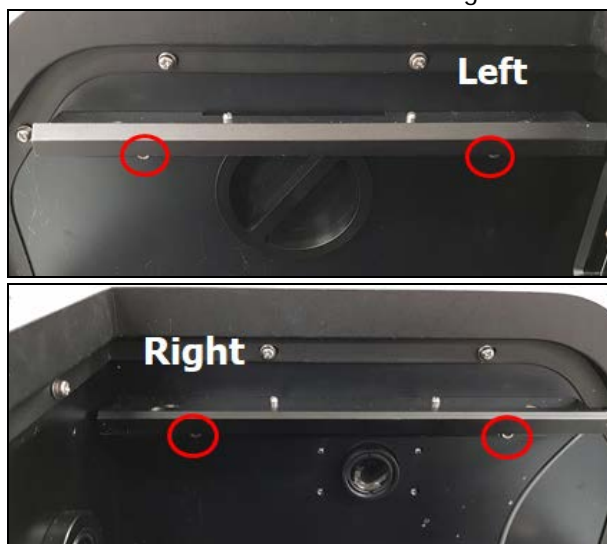


Figure 13 Fix the M4 bolts

12. Connect the M1 and M2 cables of the Microplate Reader into the accessory port.



Figure 14 Connect M1 and M2 cables

13. Fit the groove (hole) of the Microplate Reader into the position of the cradles. (If positioned well, the pogo pin will fit also.)



Figure 15 Install the Microplate Reader

14. Tighten the accessory fixing bolt.



Figure 16 Accessory fixing bolt of Microplate Reader

15. Close the Microplate Reader cover and then, lock the latch at the left and right side of the front cover.

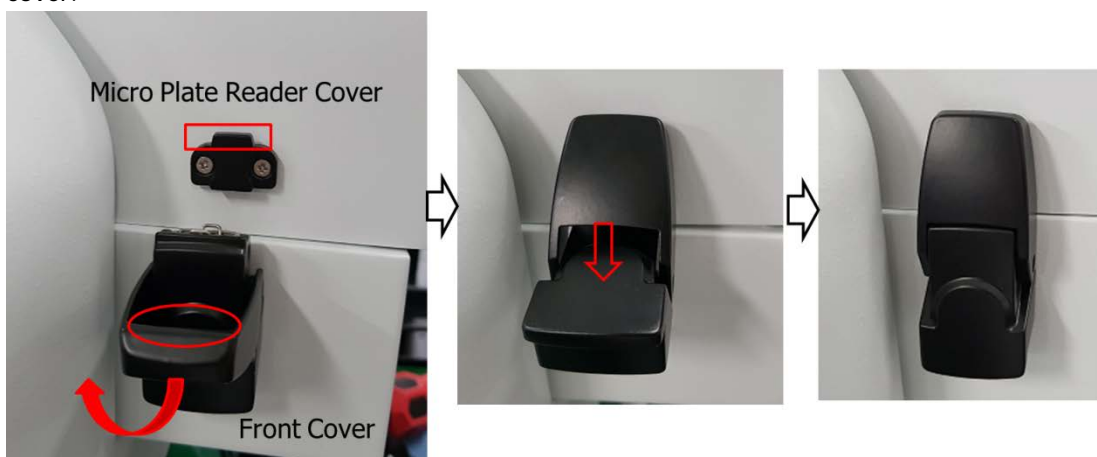


Figure 17 Lock the latches

NOTE: Sample loading can be done by opening the upper door of the Microplate Reader.



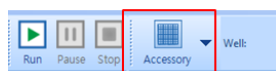
Figure 18 Upper door of the Microplate Reader

Calibration of Microplate Reader

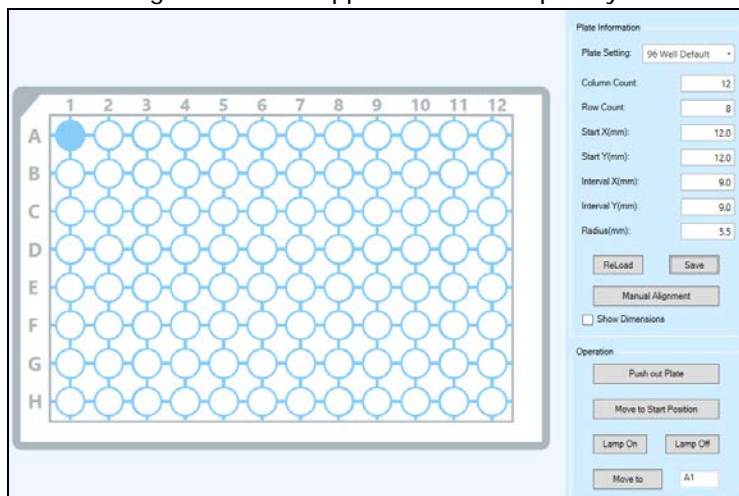
1. Execute the **Spectrum FL** software.

2. Select Options mode  → **Microplate Reader** icon  Or click the

Accessory icon



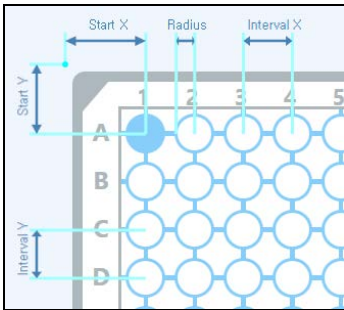
3. The following window will appear. Select the plate you want to use.



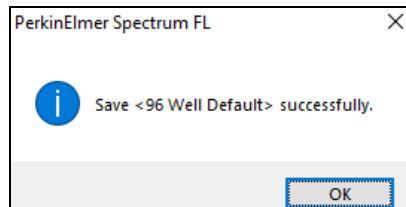
4. Enter the required parameters on each tab if you know the whole plate information.

Plate Information	
Plate Setting:	96 Well Default
Column Count:	12
Row Count:	8
Start X(mm):	12.0
Start Y(mm):	12.0
Interval X(mm):	9.0
Interval Y(mm):	9.0
Radius(mm):	5.5
<div>ReLoad Save</div> <div>Manual Alignment</div> <div><input type="checkbox"/> Show Dimensions</div>	

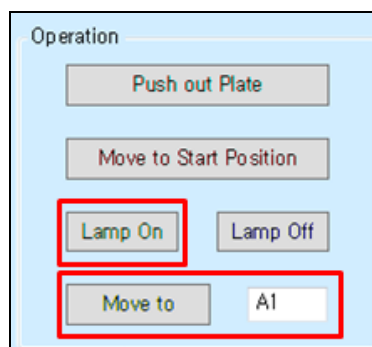
List	Function
Plate Setting	Select the type of well plate. Default is 96 or 384 wells. Customized setting is available.
Column Count	Enter the value for the number of columns.

Row Count	Enter the value for the number of rows.
Start X, Start Y	Enter the x and y distance of the A1 well to the upper right corner of the plate.
Interval X, Interval Y	Enter the distance between the centers of two neighboring wells in the x and y directions.
Radius (mm)	Enter the value for the radius of the wells in the plate.
Reload	Open the previously saved parameters.
Save	Save the setting parameters.
Manual Alignment	Refer to the Manual Alignment chapter.
Show Dimensions	<p>If you check Show Dimensions, it shows the range of each parameter.</p> 

5. Click **Save**.



6. Click the **Lamp On** button in the Operation to turn on the lamp. Enter the **A1** and click **Move to** button.



7. If the A1 position is not correct, Go to the next **Manual Alignment** section.

NOTE: The Start X value and the Start Y value may differ because the starting position differs depending on the accessories and equipment.

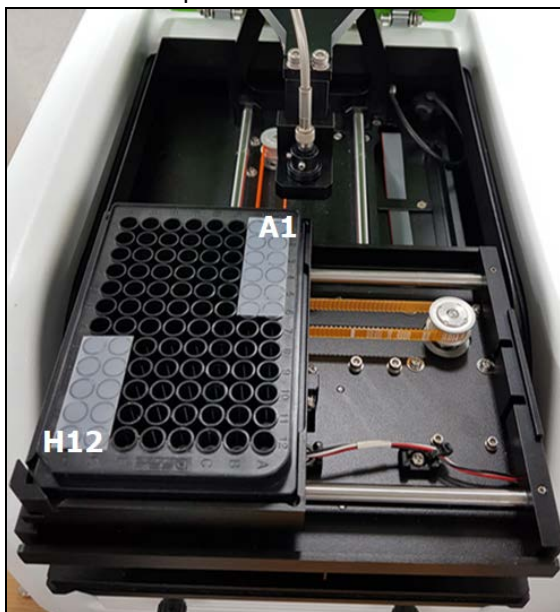
Manual Alignment

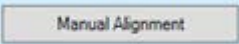
NOTE: *If you do not know the Plate information or A1 position is not correct, proceed the manual alignment.*

1. Prepare a micro plate and Scotch® Magic™ Tape. Attach the magic tape onto the A1 and H12 (96 well) or P24 (384 well) area as shown below.



2. Load the micro plate.



3. Click **Manual Alignment**  in the Plate Information.

4. The following window appears.

List	Function
Movement Setting	Use these settings to define the distance the probe is moved head, each time an alignment arrow is pressed. Use 10 mm for the coarse tuning and 0.1 mm for the fine tuning.
Movement Control	Use the arrows to align the probe. Each time you click on one of the arrows the probe is moved in the indicated direction. The distance the probe is moved is determined by the alignment distance.

Operation

List	Function
Move to Start Position	Move the micro plate to the start position.
Turn on Lamp	Turn on the lamp.
Turn off Lamp	Turn off the lamp.

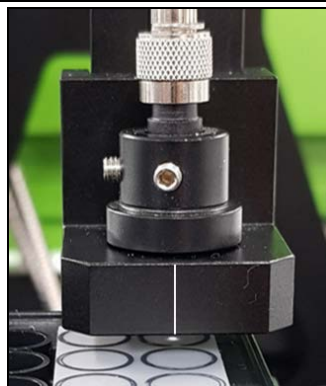
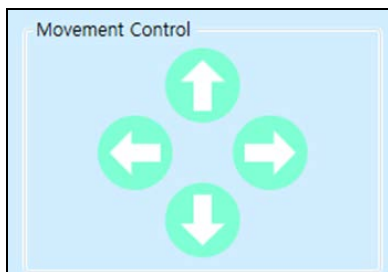
5. Enter the Row and Column counts in the Step 1. Then click **Done**.

6. The lamp will be turned on automatically.

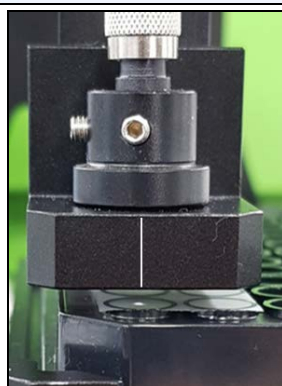
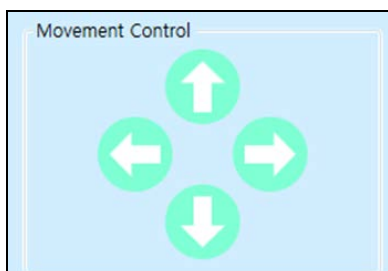
7. Click **Done** in Step 2.



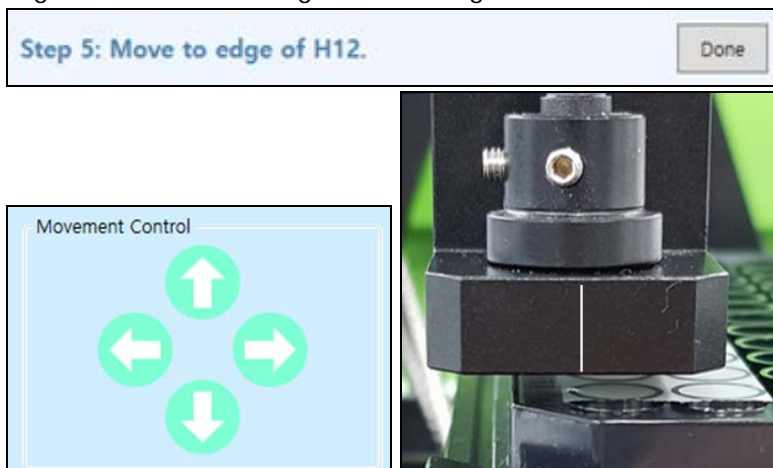
8. Align the beam to the centre of A1 using the Movement Control icons and click **Done**.



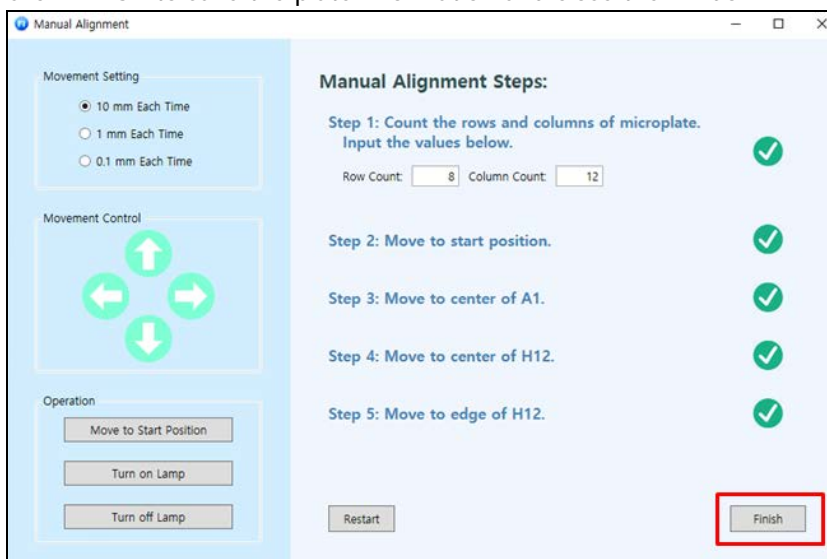
9. Align the beam to the centre of H12 using the Movement Control icons and click **Done**.



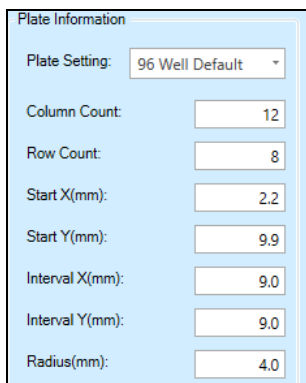
10. Align the beam to the edge of H12 using the Movement Control icons and click **Done**.



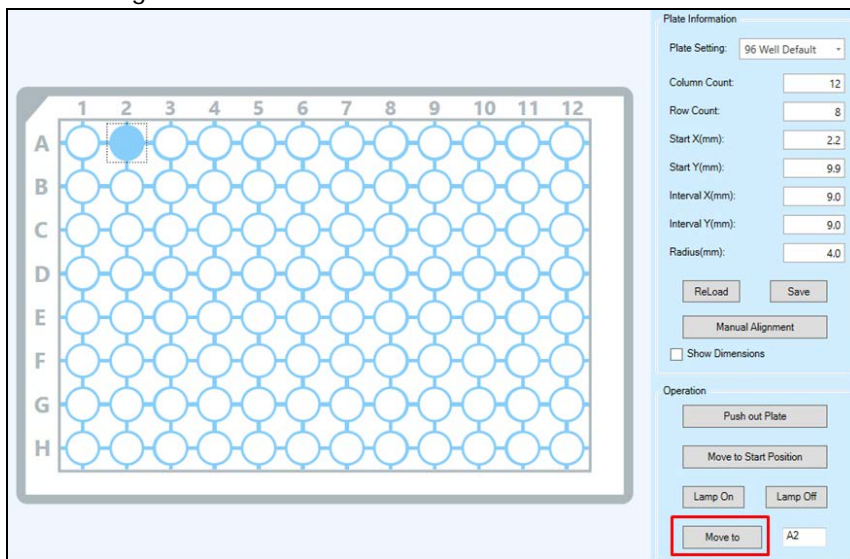
11. Click **Finish** to save the plate information and close the window.



12. You can see that the **Plate Information** tab has been changed.



13. Select any position in the micro plate picture and click **Save** and then **Move to**. Confirm that the beam is aligned well.



14. If the beam position is correct, Go to the following Measurement section. If the beam position is not correct, Execute the Manual Alignment again.

Measurement

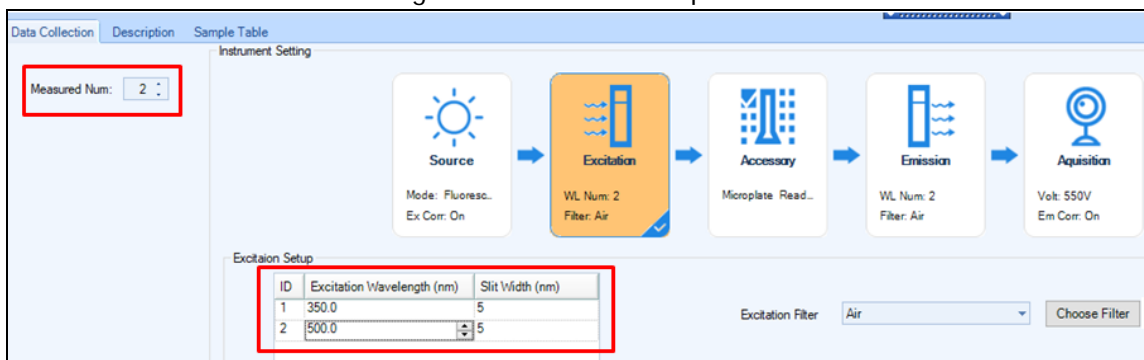
1. Open the **Spectrum FL** software and select a **Microplate Reader** mode in the Method Setup.



2. In the **Data Collection** tab, set the measurement parameters in turn.

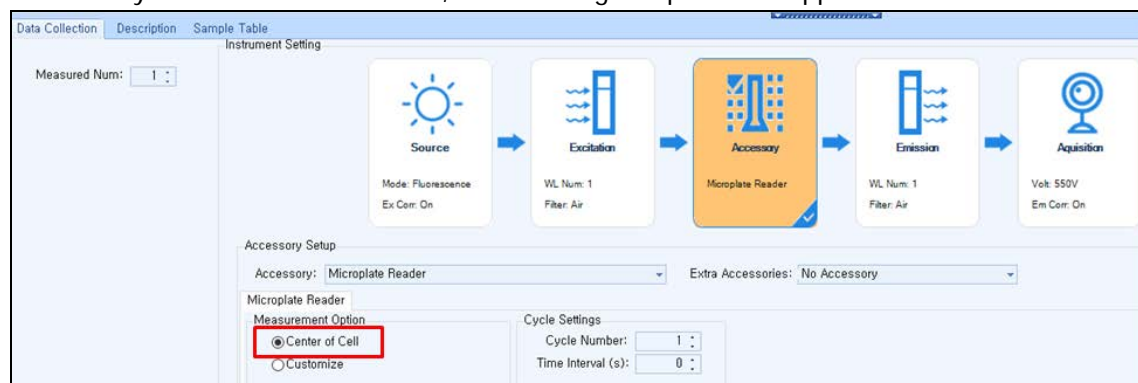
NOTE: For more detail of method, refer to *Spectrum FL Software Users Guide*.

3. When you click the **Excitation** of the Instrument Setting, enter the number of the wavelength for measurement in the **Measured Num**. The ID in the Excitation Setup is generated as entered in Measured Num. Enter the wavelengths and slits for the experiment.

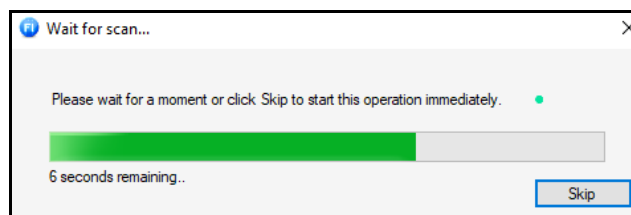


4. When you click the **Accessory** of the Instrument Setting, the following window appears.

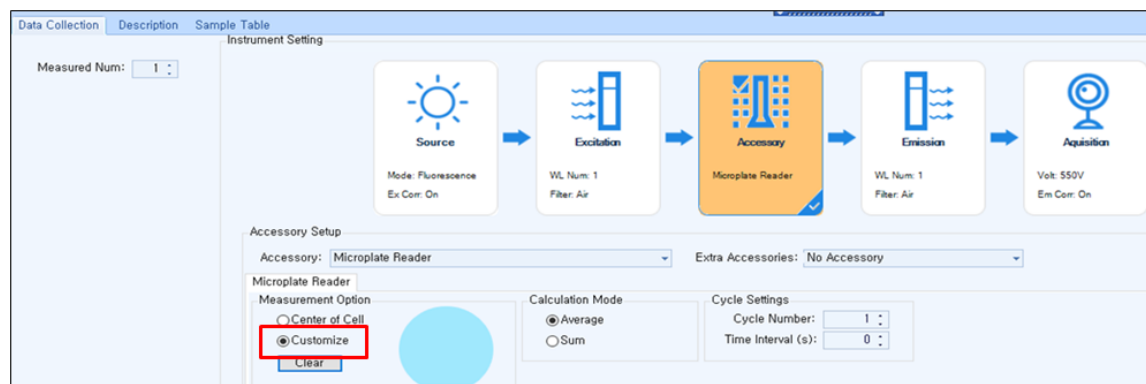
a. When you select **Center of Cell**, the following setup window appears.

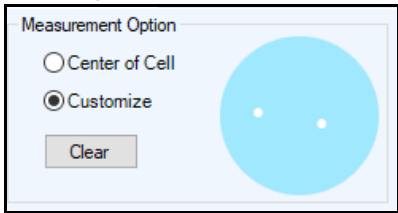
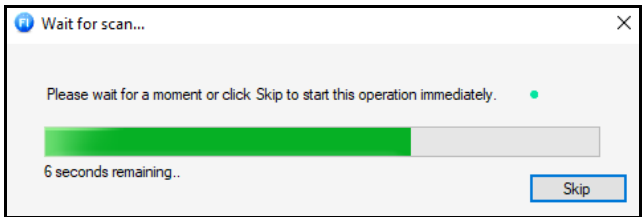


List	Function
Center of Cell	Selecting this means that whenever you click on a well to set a measurement point, the measurement point is automatically set to the center of the well.
Cycle Number	This is the number of measurement cycle.
Time Interval	The time interval is the time between last measurement of current cycle and the 1st measurement of next cycle. Before the next cycle measurement, a message window will pop up as shown below. Click Skip to measure immediately.

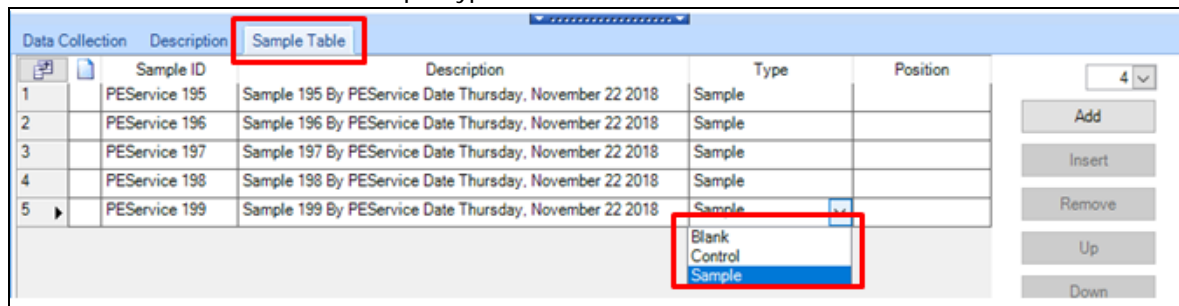


b. When you select **Customize**, the following setup window appears.



List	Function
Customize	<p>Selecting this means that whenever you click on a well to set a measurement point, the measurement point is set exactly where you clicked, rather than being automatically centered on the well.</p> <p>Normally the customize option is used for a large well (eg. 4 or 16)</p> 
Calculation Mode	<p>Select Average or Sum.</p> <p>Average: If selected, multiple reads for a given well are averaged.</p> <p>Sum: If selected, multiple reads for a given well are summed (integrated). The results spreadsheet is updated when all readings are performed for a given well.</p>
Cycle Number	This is the number of measurement cycle.
Time Interval	<p>The time interval is the time between last measurement of the current cycle and the first measurement of next cycle.</p> <p>Before the next cycle measurement, a message window will pop up as shown below. Click Skip to measure immediately.</p> 

5. After setting the parameters in the Data Collection, select **Sample Tables** tab. Add the sample numbers and select the each sample type.



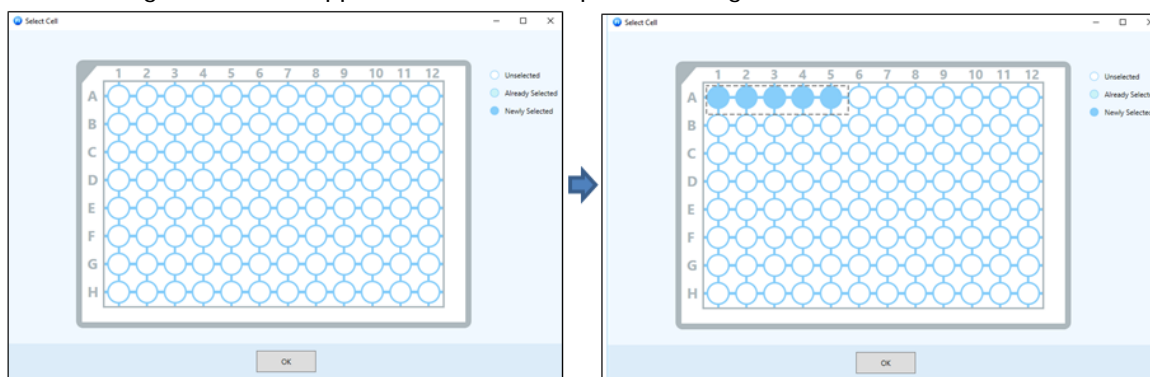
6. Click the **Position** to select the cell position.

Data Collection		Description	Sample Table	Type	Position
1	▶	PEService 195	Sample 195 By PService Date Thursday, November 22 2018	Sample	
2		PEService 196	Sample 196 By PService Date Thursday, November 22 2018	Sample	
3		PEService 197	Sample 197 By PService Date Thursday, November 22 2018	Sample	
4		PEService 198	Sample 198 By PService Date Thursday, November 22 2018	Sample	
5		PEService 199	Sample 199 By PService Date Thursday, November 22 2018	Sample	
6		PEService 200	Sample 200 By PService Date Thursday, November 22 2018	Sample	

Click to select cell position.

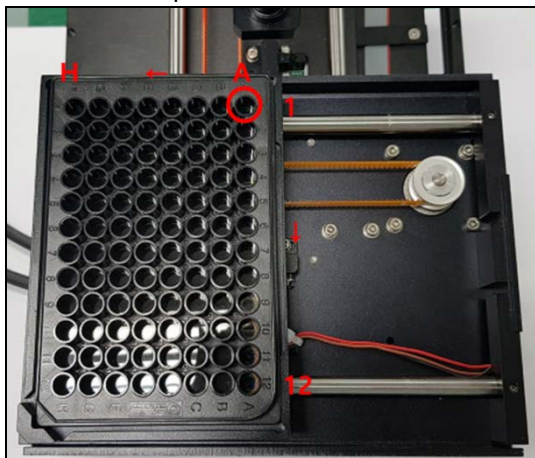
Add
 Insert
 Remove
 Up

7. The following window will appear. Select the cell position using a mouse.



NOTE: Each selection: Click the mouse, Each cancellation: Click the selected position again.
 Area selection: Drag the mouse, Area cancellation: Click the mouse outside the plate anywhere.

8. Click **Save** to save the method after setting up the parameters.
9. Prepare a Microplate filled with the sample for measurement.
10. Load the Microplate.



11. Select the **Run** icon.
12. Input the sample name and select **OK**.
13. Save or print the data if required.

