# LAMBDA 265, 365 AND 465 ASX-260/280 AND ASX-520/560 AUTOSAMPLER

## Users Guide

PerkinElmer®

**Release History**

| Part Number | Release | Publication Date |
|---|---|---|
| 09931308 | C | September 2016 |

Any comments about the documentation for this product should be addressed to:

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# *Table of Contents*

# ***Introduction***

# Features

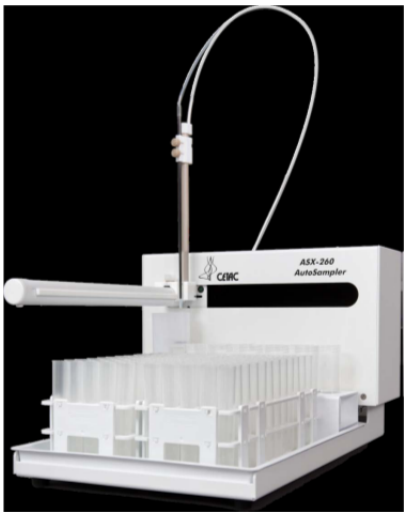
The ASX 260/280 and ASX-520/560 autosamplers are designed to be study, reliable and easy to use. They provide automated sample introduction that enables you to perform other tasks while the Auto Sampler runs.

The ASX 260/280 and ASX-520/560 automatically introduces up to 180 and 360 samples each when fully loaded. It contains a microprocessor that allows sequential or random sampling, providing flexibility.

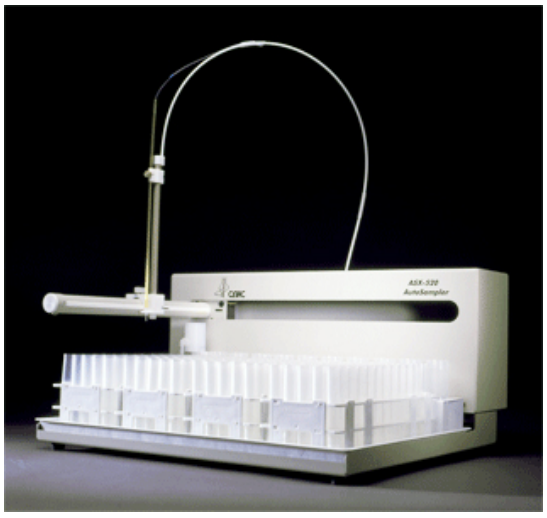
The components of autosampler are made of corrosion-resistant stainless steel alloys or anodized aluminum. The enclosure and base are made from a high-strength aluminum alloy that is chromated and finished with an epoxy powder coating.

The autosampler operates reliably under a wide variety of conditions. Components in the sample flow path are made of polyetherimide (PEI) and polytetrafluoroethylene (PTFE). When these inert, non-metallic materials are used at temperatures less than 135 °C, they can withstand repeated exposure to the following substances.

# *Autosamplers and Peristalic Pump*




**Autosampler (ASX-260)**




**Autosampler (ASX-520)**

**Autosampler (ASX-280)**

**Autosampler (ASX-560)**

**Peristaltic Pump**

# Dimensions and Specifications

## Dimensions of AutoSampler

| Physical Characteristic | Specification | |
|---|---|---|
| | ASX-260 | ASX-520 |
| Power | 100-240 VAC, 47/63 Hz | |
| Dimensions (mm) | 330 (W) x 508 (D) x 610 (H) | 520 (W) x 482 (D) x 610 (H) |
| Weight (kg) | 8.4 | 10.5 |
| Tray | 2 racks capacity | 4 racks capacity |

| Physical Characteristic | Specification | |
|---|---|---|
| | ASX-280 | ASX-560 |
| Power | 100-240 VAC, 47/63 Hz | |
| Dimensions (mm) | 355 (W) x 550 (D) x 620 (H) | 580 (W) x 550 (D) x 620 (H) |
| Weight (kg) | 8.1 | 11.7 |
| Tray | 2 racks capacity | 4 racks capacity |

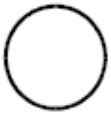
## Specifications of Peristaltic Pump

| Specifications | |
|---|---|
| Speed (rpm) | 0.1 to 100 |
| Flow rate* | 0.0002 - 35 ml/min/channel (tubing dependent) |
| Motor type | Stepper motors |
| Channels | 2 |
| Tubing i.d.(mm) | 0.13 to 3.17 |
| Temperature, operating (°C) | -5 to 40 |
| Humidity | Up to 80% |
| Dimensions (mm) | 170 (H) x 125 (W) x 193 (D) |
| Power | 30 W, 100 – 240 VAC, 50/60 Hz |
| Weight (kg) | 2.7 |

# *Safety Summary*

The following safety symbols are used on this product.

| Warning | Description |
|---|---|
|  | Always refer to the system manual when working near locations at which the alert mark shown on the left is attached. If the operation, etc., is performed without heeding the advice in the System manual, there is a risk of personal injury. In addition, the equipment performance may be reduced. Moreover, this alert mark is sometimes used with other marks and descriptions indicating other dangers.<br><br>Il faut toujours voir le manuel du système lors de l'exécution de travaux près des endroits où le panneau d'alerte montré dans la colonne à gauche est placé. Il y a un risque de blessures, si le travail est effectué sans respecter les conseils dans le manuel du système. En outre, le rendement de l'équipement pourrait être réduit. Par ailleurs, ce panneau d'alerte est parfois utilisé avec d'autres panneaux comportant les indications de danger. |
|  <br>**Warning** | When supplying power to this equipment, connect the accessory 3-pin power cord to a 3-pin grounded power outlet. If a grounded 3-pin outlet is not available, use a conversion adapter and ground the green wire. If power is supplied without grounding the equipment, there is a risk of receiving a fatal electric shock and equipment damage.<br><br>Lors de l'alimentation de l'équipement, branchez le cordon d'alimentation accessoire à 3 broches dans une prise d'alimentation mise à la terre à 3 broches. Si une prise mise à la terre à 3 broches n'est pas disponible, utilisez un adaptateur de conversion en raccordant le fil vert pour réaliser la mise à la terre. Si l'alimentation est fournie sans mettre l'équipement à la terre, il y a un risque d'électrocution et de dommages à l'équipement. |
|  | "On" (power)<br><br>To indicate connection to the mains, at least for mains switches or their positions, and all those cases where safety is involves.<br><br>"On" (Sous tension)<br><br>Pour indiquer le branchement à l'alimentation du secteur, au moins pour les interrupteurs du secteur ou leur position, et tous les autres cas qui concernent la sécurité. |



"OFF" (power)

To indicate disconnection from the mains, at least for mains switches or their positions, and all those case where safety is involves.

"OFF" (Hors tension)

Pour indiquer la coupure du secteur, au moins pour les interrupteurs du secteur ou leur position, et tous les autres cas qui concernent la sécurité.

Repair

**Warning**

The user cannot repair this equipment.

DO NOT attempt to open the case or to disassemble internal parts.

Only your PerkinElmer service representative with knowledge of electrical fire and shock hazard should service this equipment.

There are high-voltage parts in this equipment presenting a risk of severe injury or fatal electric shock to untrained personnel.

In addition, there is a risk of damage to precision parts.

**Warning**

L'utilisateur ne doit pas essayer de réparer cet équipement.

NE PAS tenter d'ouvrir le boîtier ou de démonter ses pièces internes.

Seul un représentant du service PerkinElmer qui est conscient des risques d'incendie et d'électrocution devrait réparer cet équipement.

Cet équipement contient des parties à haute tension présentant des risques de blessure grave ou d'électrocution au personnel non qualifié.

En outre, il existe un risque d'endommagement des pièces de précision.

Falling Over

**Caution**

This equipment should be used in the correct position. If the equipment is turned on its side, etc., it will be unstable and may be damaged if it falls over as a result of receiving a slight mechanical shock.

**Caution**

Cet équipement doit être utilisé dans l'orientation correcte. Si, par exemple, l'équipement est couché sur un de ses côtés, il deviendra instable. S'il tombe à la suite d'un léger choc mécanique, il pourra être endommagé.

| Warning | Description |
| --- | --- |
| Cleaning<br><br>**Caution** | Keep the equipment free of dust.<br><br>Clean the power line regularly; if dust accumulates around the power pins, there is a risk of fire.<br><br>Keep the equipment clean so that the ventilation holds are not obstructed. If the ventilation is obstructed, the system may overheat and catch fire.<br><br>Periodically clean your equipment's case using a damp cloth.<br><br>Do not use abrasives, cleaning solvents or strong detergents, as they may damage the finish or affect the reliability of the structural components.<br><br>Gardez l'équipement exempt de poussières.<br><br>Nettoyez le cordon d'alimentation régulièrement. Les poussières qui s'accumulent autour des broches du cordon d'alimentation pourraient entraîner un risque d'incendie.<br><br>Gardez l'équipement propre de sorte que les orifices de ventilation ne soient pas bouchés. Si les grilles de ventilation sont obstruées, le système pourrait surchauffer et s'enflammer.<br><br>Nettoyez périodiquement le boîtier de l'équipement à l'aide d'un chiffon humide. |
| | If this equipment is used in a manner not specified by this manual, the protection provided by the equipment may be impaired.<br><br>Si l'équipement est utilisé d'une manière non spécifiée dans ce manuel, la protection fournie par l'équipement risque d'être altérée |

# Conventions Used in this Manual

Normal text is used to provide information and instructions.

**Bold** text refers to text that is displayed on the screen.

UPPERCASE text, for example ENTER or ALT, refers to keys on the PC keyboard. '+' is used to show that you have to press two keys at the same time, for example, ALT+F.

All eight digit numbers are PerkinElmer part numbers unless stated otherwise.

## Notes, cautions and warnings

Three terms, in the following standard formats, are also used to highlight special circumstances and warnings.

**NOTE:** *A note indicates additional, significant information that is provided with some procedures.*

## Note, attention et avertissement

Trois termes, dans les formats standard suivants, sont également utilisés pour mettre des circonstances et avertissements spéciaux en évidence.

**NOTE:** *Une note indique des renseignements supplémentaires et significatifs qui sont fournis avec certaines procédures.*

| | |
|---|---|
| **CAUTION** | *We use the term CAUTION to inform you about situations that could result in **serious damage to the instrument** or other equipment. Details about these circumstances are in a box like this one.* |
| D | ***Caution (Achtung)***<br>*Bedeutet, daß die genannte Anleitung genau befolgt werden muß, um einen **Geräteschaden** zu vermeiden.* |
| DK | ***Caution (Bemærk)***<br>*Dette betyder, at den nævnte vejledning skal overholdes nøje for at undgå en **beskadigelse af apparatet**.* |
| E | ***Caution (Advertencia)***<br>*Utilizamos el término **CAUTION** (ADVERTENCIA) para advertir sobre situaciones que pueden provocar **averías graves en este equipo** o en otros. En recuadros éste se proporciona información sobre este tipo de circunstancias.* |
| F | ***Caution (Attention)***<br>*Nous utilisons le terme **CAUTION** (ATTENTION) pour signaler les situations susceptibles de provoquer de **graves détériorations de l'instrument** ou d'autre matériel. Les détails sur ces circonstances figurent dans un encadré semblable à celui-ci.* |
| I | ***Caution (Attenzione)***<br>*Con il termine **CAUTION** (ATTENZIONE) vengono segnalate situazioni che potrebbero arrecare **gravi danni allo strumento** o ad altra apparecchiatura. Troverete informazioni su tali circostanze in un riquadro come questo.* |
| NL | ***Caution (Opgelet)***<br>*Betekent dat de genoemde handleiding nauwkeurig moet worden opgevolgd, om **beschadiging van het instrument** te voorkomen.* |
| P | ***Caution (Atenção)***<br>*Significa que a instrução referida tem de ser respeitada para evitar a **danificação do aparelho**.* |

**WARNING**

*We use the term WARNING to inform you about situations that could result in **personal injury** to yourself or other persons. Details about these circumstances are in a box like this one.*

**D**

***Warning (Warnung)***
*Bedeutet, daß es bei Nichtbeachten der genannten Anweisung zu einer **Verletzung** des Benutzers kommen kann.*

**DK**

***Warning (Advarsel)***
*Betyder, at brugeren kan blive **kvæstet**, hvis anvisningen ikke overholdes.*

**E**

***Warning (Peligro)***
*Utilizamos el término **WARNING** (PELIGRO) para informarle sobre situaciones que pueden provocar **daños personales** a usted o a otras personas. En los recuadros como éste se proporciona información sobre este tipo de circunstancias.*

**F**

***Warning (Danger)***
*Nous utilisons la formule **WARNING** (DANGER) pour avertir des situations pouvant occasionner des **dommages corporels** à l'utilisateur ou à d'autres personnes. Les détails sur ces circonstances sont données dans un encadré semblable à celui-ci.*

**I**

***Warning (Pericolo)***
*Con il termine **WARNING** (PERICOLO) vengono segnalate situazioni che potrebbero provocare **incidenti alle persone**. Troverete informazioni su tali circostanze in un riquadro come questo.*

**NL**

***Warning (Waarschuwing)***
*Betekent dat, wanneer de genoemde aanwijzing niet in acht wordt genomen, dit kan leiden tot **verwondingen** van de gebruiker.*

**P**

***Warning (Aviso)***
*Significa que a não observância da instrução referida poderá causar um **ferimento*** ao usuário.

# *Contact Us*

Supplies, replacement parts, and accessories can be ordered directly from PerkinElmer, using the part numbers quoted in the guides provided with the instrument.

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:

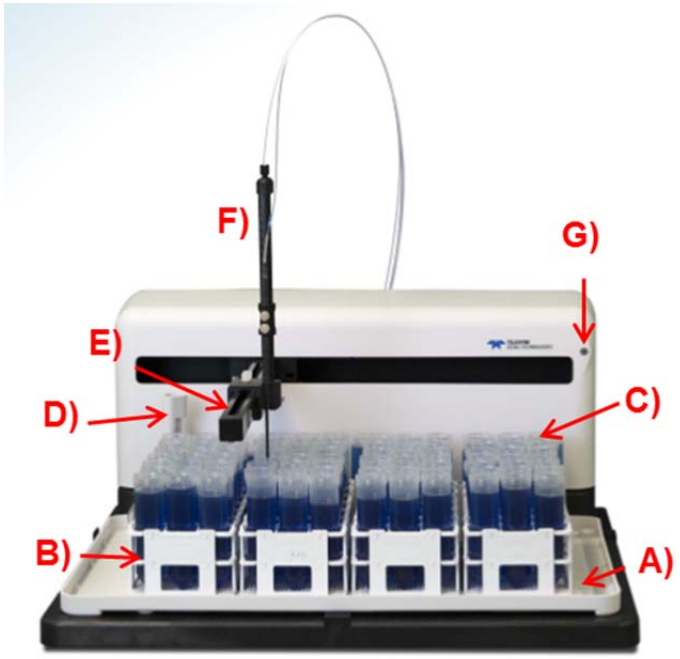
If you are located within the U.S., call toll free 1-800-762-4000, 8 a.m. to 8 p.m. EST. Your order will be shipped promptly, usually within 24 hours.

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

# ***Description***

# Description of the Autosampler

## Front View of Autosampler




A) **Sample tray** The sample tray holds the rinse station, sample racks, and standards vials in place. The tray also contains small spills.

B) **Sample vial racks** The ASX-520/560 includes four sample vial racks; the ASX-260/280 includes two racks. You can choose from different rack sizes (common sizes fit 21, 24, 40, 60 or 90 vials per rack). You can combine racks of different sizes as long as the host computer's software accepts the combination.

C) **Standards vials** Ten standards vials are included with the autosampler. The standards vials, which fit into the standards positions at the back of the sample tray, are 50-milliliter conical centrifuge vials with caps.

D) **Rinse station**

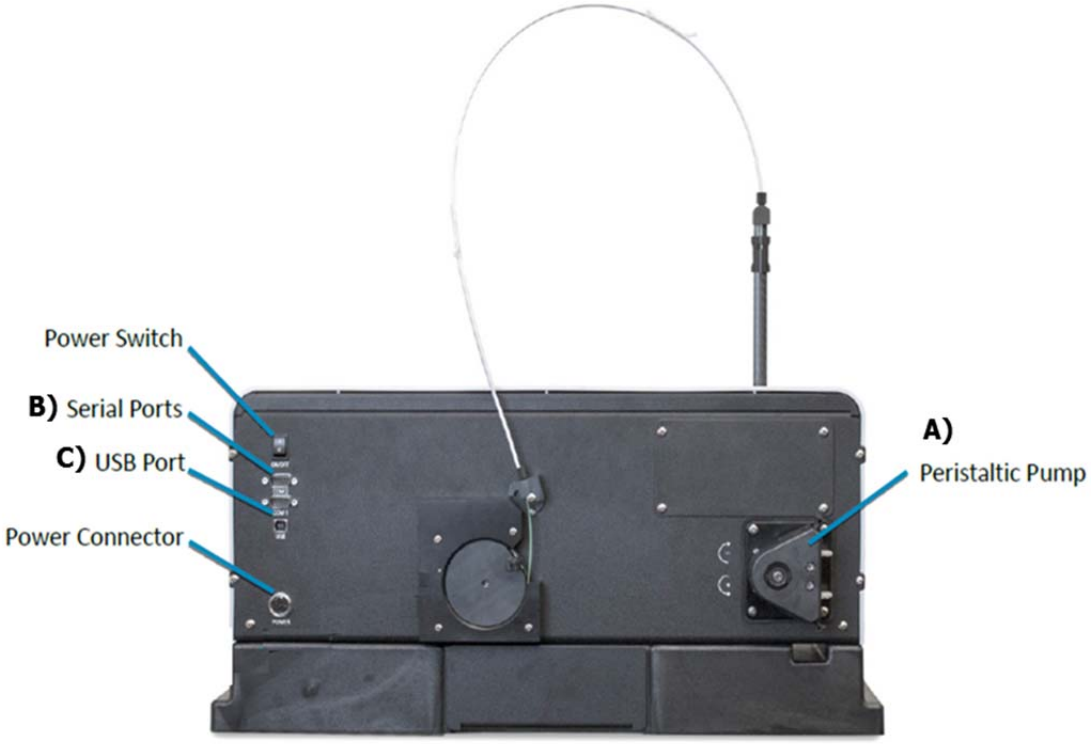
The flowing rinse station is located at the left end of the standards positions at the back of the sample base. It comes with tubing used to connect the rinse station to the rinse source and the waste container.

E) **Arm** The arm moves the sample probe horizontally

F) **Z-Drive assembly** The z-drive assembly includes a y-axis slider block and guide plate as well as the sample probe. The z-drive assembly fits onto the autosampler arm.

G) **Power Indicator Lamp** The LED indicates that the autosampler is connected to a power source and turned on.

## *Back View of Autosampler*




A) **Peristaltic pump**

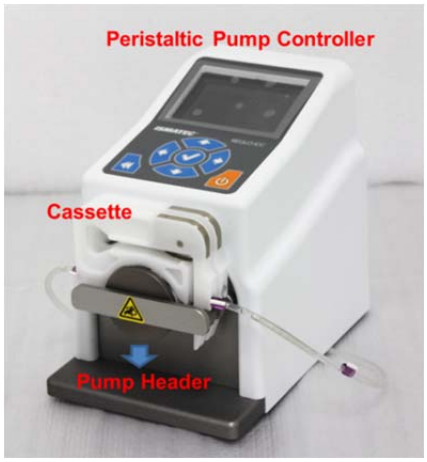
A two-channel peristaltic pump moves the rinse solution from the rinse source through the flowing rinse station.

B) **Serial Ports**

The COM1 port connects the autosampler with the analytical instrument's host computer. The COM2 port connects the autosampler to other external devices, such as an autodilutor.

C) **USB Port** The USB port can be used to interface the autosampler with the host computer.

# Description of the Auto sipper




**Peristaltic Pump for Lambda 265/365/465**

- ***Lambda 265/465***

***Tube connection components for Lambda 265/465***

| | | | |
|---|---|---|---|
| ***Conical Adapter (2ea)*** |   | ***Outlet tube (1ea)*** |  |
| ***Peristaltic pump tubing (1ea)*** |  | ***Inlet tube (1ea)*** |  |
| ***Tube 1.5 M (1ea)*** |  | ***Flow cell (1ea) Beam height: L265(8.5 mm) L465(15 mm)*** |   |

- ***Flow cell for L265: P/N N4101051***
- ***Flow cell for L465: P/N N4101052***

- ***Lambda 365***

***Tube connection components***

| | | | |
|---|---|---|---|
| ***Conical Adapter (2ea)*** |  | ***Outlet tube (1ea)*** |  |
| ***Peristaltic pump tube (1ea)*** |  | ***Inlet tube (1ea)*** |  |
| ***Tube 1.5 M (1ea)*** |  | ***Flow cell (1ea) Beam height: L365(15 mm)*** |  |

- ***Flow cell for L365 P/N: N4101052***

***Front plate for Auto Sipper accessory [P/N: N4101026]***

| | | | |
|---|---|---|---|
| ***Connection Tube Assembly (2ea)*** |  | ***Flangeless Fittings (2ea)*** |  |
| ***Phillips round head screw with washer*** **(M4 *12L)** ***(2ea)*** |  ***Used to fix a front plate for Auto Sipper Accessory Lambda 365*** | ***Front plate for Auto Sipper Accessory (1ea)*** |  |

**NOTE**: *Front plate for auto sipper accessory must be purchased separately.*

**Optional autosampler accessory for the connecting to Lambda 265/365/465**

Union and ferrule kit are used to connect between autosampler and auto sipper.

| | |
|---|---|
| ***connection kit*** |   |

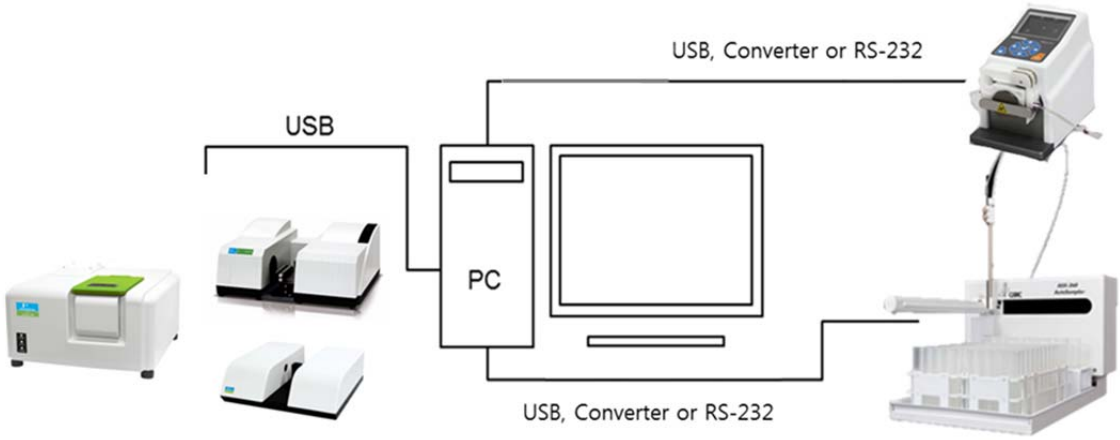
**NOTE**: *This kit is optional and must be purchased separately*.

# ***Installation***

# *Installation*

1. Place the Lambda 265/365/465 autosampler (ASX-260/280 or 520/560) and peristaltic pump in a location that is compatible with the required environmental conditions for the operation.

2. Connect the communication cable and the power cord to each system and PC.




3. When the autosampler is connected via USB, the customer needs to install in the PC the USB driver enclosed in the Install CD.

4. In case of peristaltic pump you should download the USB driver on the IDEX website.

5. website: https://www.idex-hs.com/support/literature-downloads/software-and-drivers.

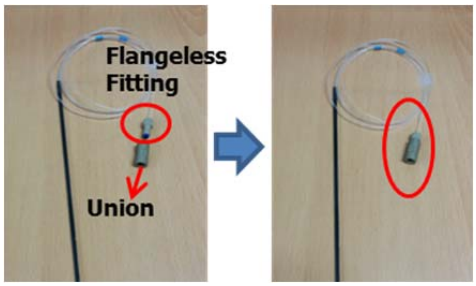
**NOTE:** *In case of using laptop computer, the converter (RS-232 to USB) is not recommended since the laptop is very sensitive to the noise resulted from the unstable electric power supply. If the converter should be used, the electric power of laptop should be supplied from AC power, not from battery.*

6. Connect a flow cell to the tube line between the peristaltic pump and the autosampler.

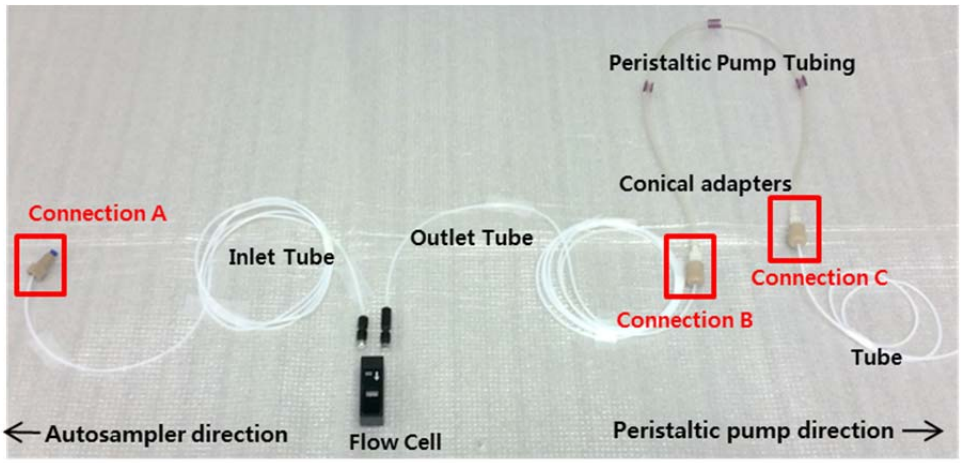
**NOTE:** In case of autosampler installation, refer to Autosmapler manual.

## *Tube line installation for Lambda 265 and 465*

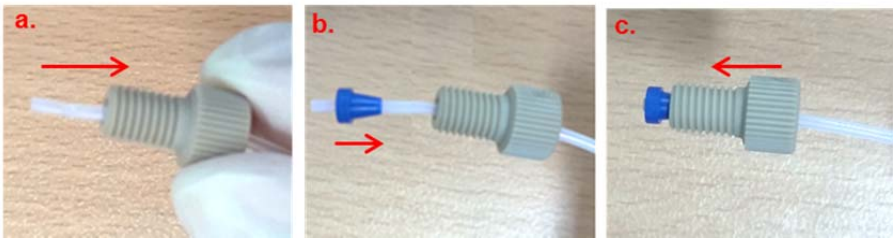
1. Assemble one of the flangeless fittings in the union and ferrule kit and connect it to the tube of the autosampler probe.



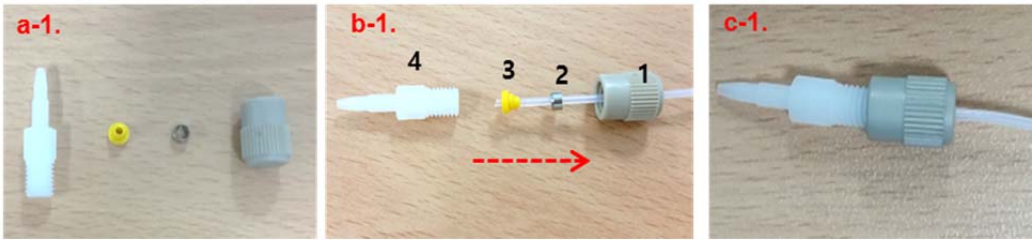

2. Prepare the tube connection components and assemble each component one by one.

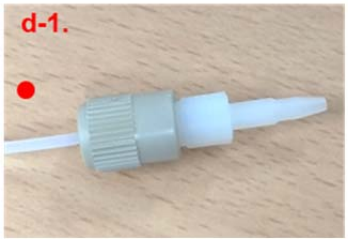


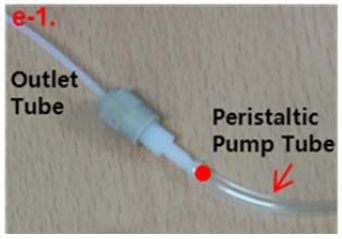

**Connection A:** Assemble the other flangeless fittings in the autosampler union and ferrule kit to the tube of the flow cell inlet and connect it to the union of autosampler probe.



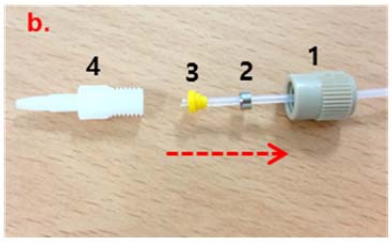

**Connection B:** Connect the outlet tube of the flow cell to the conical adapter, and to the peristaltic pump tube.

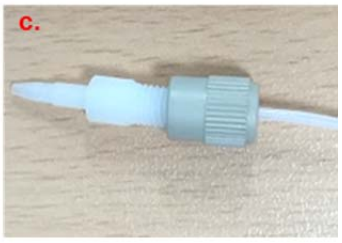


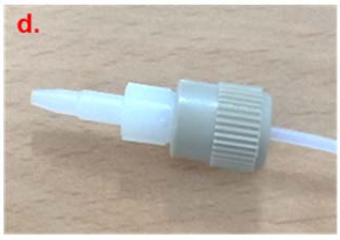


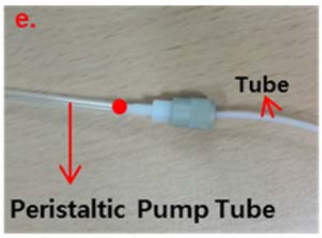




**Connection C**: Connect the tube to the conical adapter, and to the peristaltic pump tube.

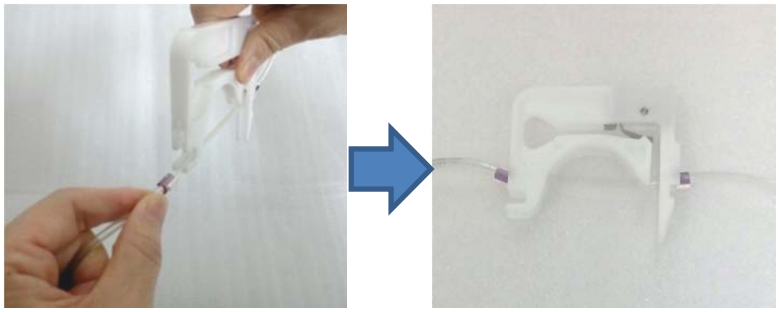




3. Insert the peristaltic pump tubing into the cassette by placing the fixing collars of the peristaltic pump tubing in the holes on each side of the cassette.



4. Press the cassette down to lock the right side snap lever on the locking bar.

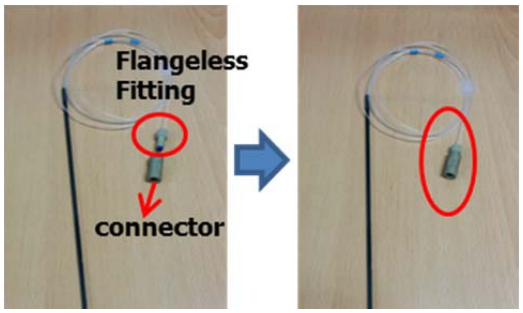
5. The inlet tube is connected to the port of the flow cell with the arrow mark and the outlet tube is connected to the other port of the flow cell.


6. Put the flow cell into the cell holder.

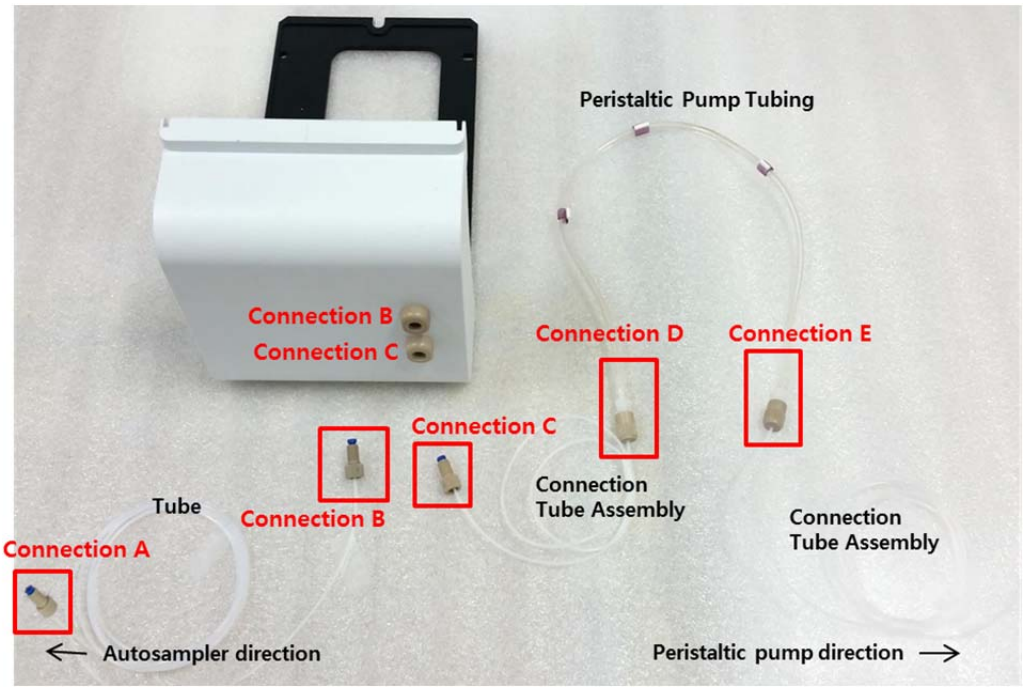
7. System configuration for the autosampler connection to the Lambda 265/465.

## *Tube line installation for Lambda 365*

1. Assemble the flangeless fitting in the union and ferrule kit and connect it to the tube of the autosampler probe.



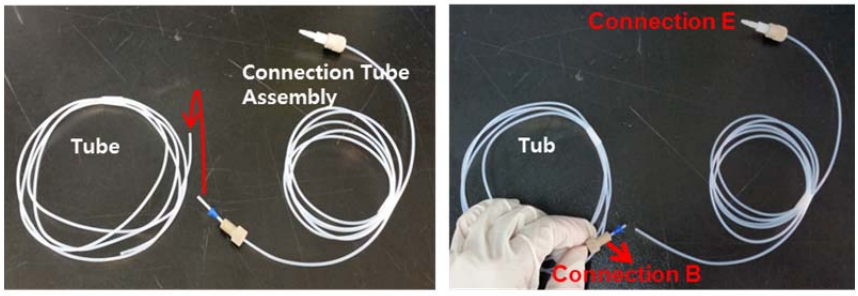

2. Prepare the tube connection components and the front plate for Auto Sipper accessory and assemble each component one by one.




**Connection A:** Assemble the other flangeless fitting in the autosampler connection kit to the terminal of tube, and connect it to the union of autosampler probe.

**Connection B:** Assemble the flangeless fitting to the terminal of tube and connect it to the front plate.

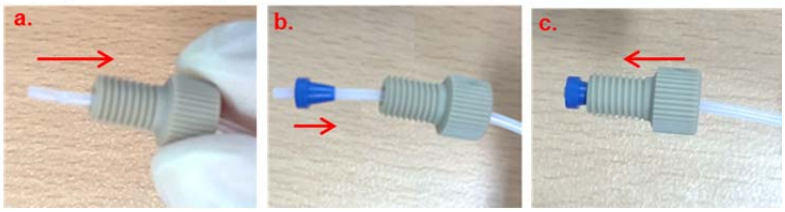
**NOTE:** *Assemble the flangeless fitting to the terminal of tube after separating the flangeless fitting from Connection tube assembly.*




**Connection C:** Connect the Flangeless fitting of the Connection tube assembly to the front plate.

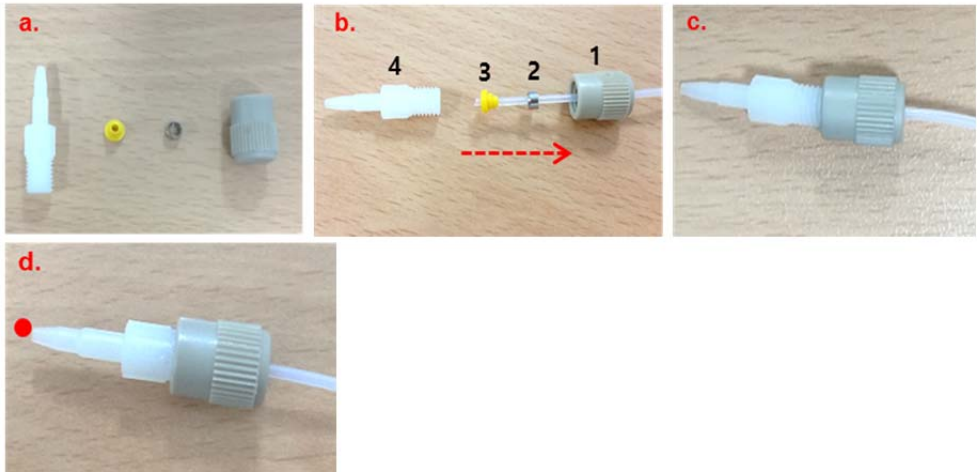
**NOTE:** *Assemble the Flangeless fitting for Connection A and Connection B following the procedures in the picture below.*

**Flangeless fitting**

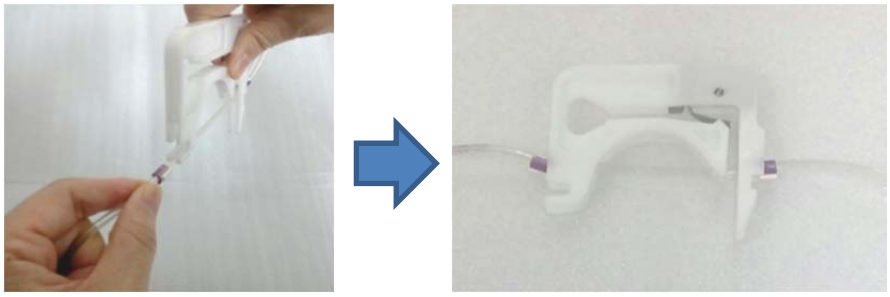



**Connection D:** Connect the conical adapter of the Connection tube assembly to the peristaltic pump tubing.

**Connection E:** Connect the conical adapter of the Connection tube assembly to the peristaltic pump tubing.

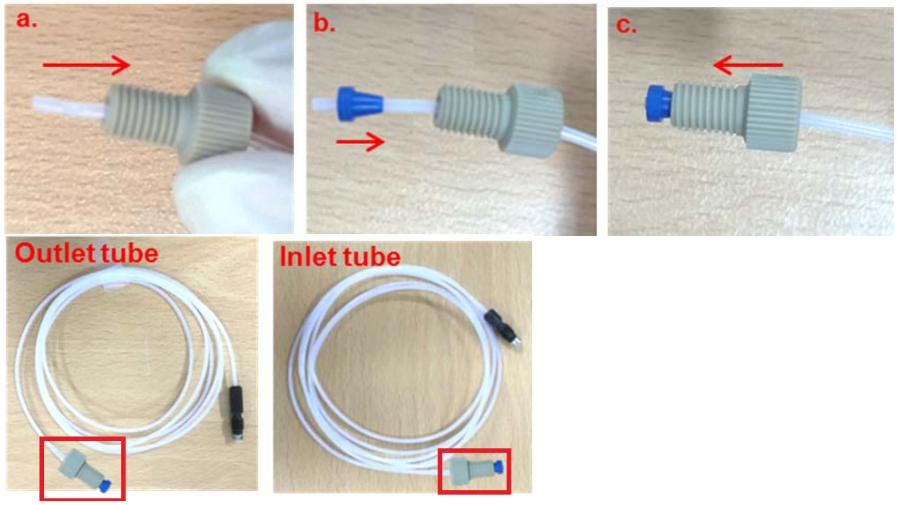



2. Insert the peristaltic pump tubing into the cassette by placing the fixing collars of the peristaltic pump tubing in the holes on each side of the cassette.

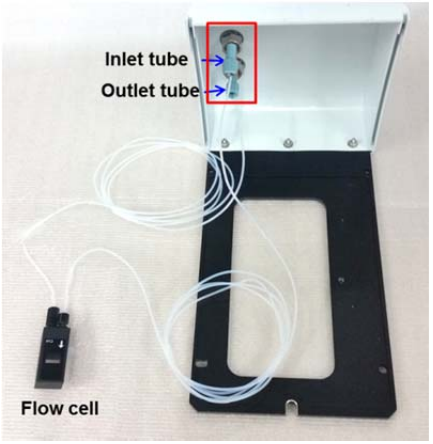


3. Press the cassette down to lock the right side snap lever on the locking bar.


4. Connect to the flangeless fittings to the inlet and outlet tubes for the flow cell.




5. Connect one connector of the inlet tube to the port of the flow cell with the arrow mark and the other connector of the inlet tube to the upper port inside of the front plate for Auto Sipper Accessory, and connect the outlet tube to the outlet port of the flow cell and to the lower port inside of the front plate for Auto Sipper accessory.


6. Remove the two Phillips round head screws with washer (M4*12L) to disassemble the existing cell holder and base plate. And then insert the front plate for Auto Sipper accessory in the sample compartment.

7. Tighten the front plate for Auto sipper accessory in the sample compartment with the screws and insert the single cell holder on the front plate and tight the knob.

8. Put the empty flow cell into the cell holder.

9. System configuration for the autosampler connection to the Lambda 365.

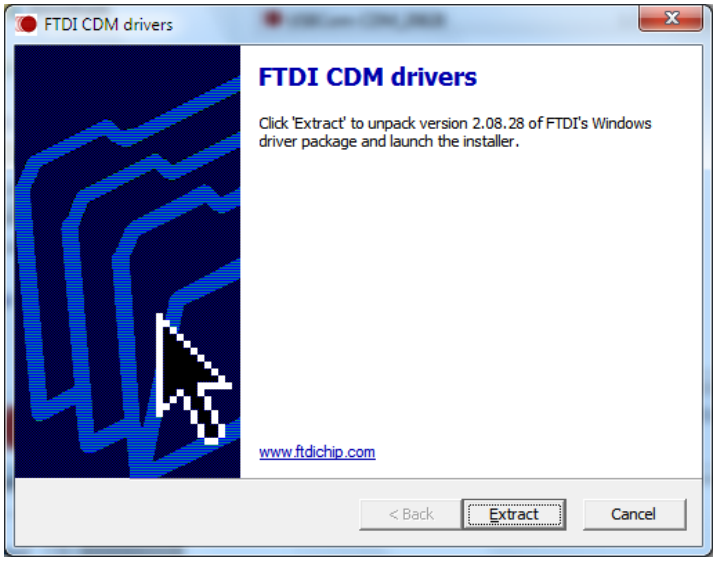
10. To start the measurement, turn on the power for the instrument, peristaltic pump and autosampler.

# ***Interface Setup***

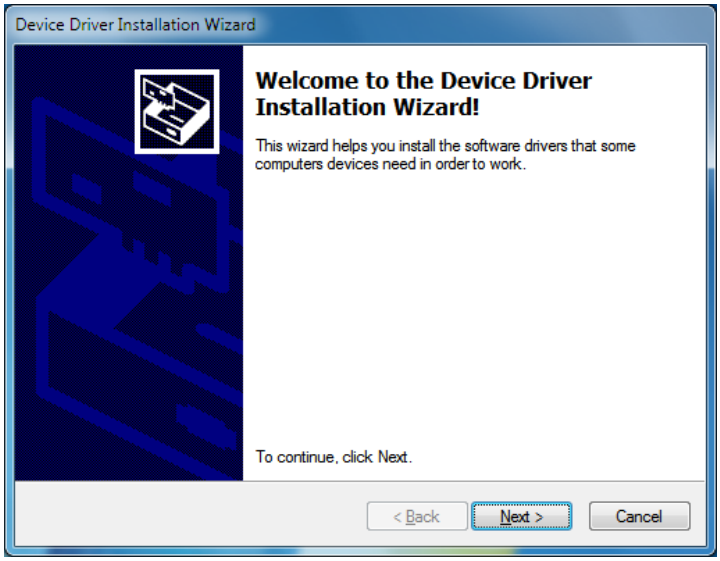
# Installing the Driver of Lambda 465

**NOTE** : *In case of the Lambda 265/365, Driver has already been installed when installing the software, user does not need to install it again.*

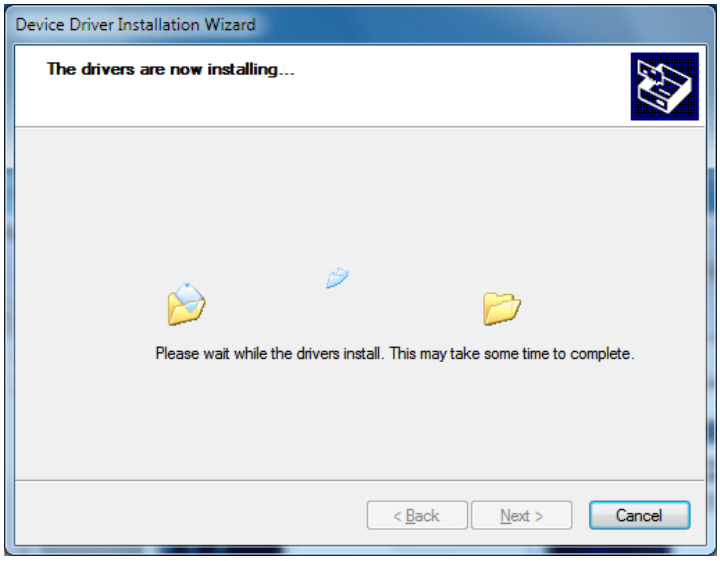
1. Install the UV Lab software.
2. Connect the USB to RS-232 between the computer and instrument.
3. Turn on the computer and autosampler.
4. Select **C> UV Lab> USB Drivers>Lambda 465>USB2** folder.
5. Double click **USBCom-CDM_20828**.
6. Select **Extract**.

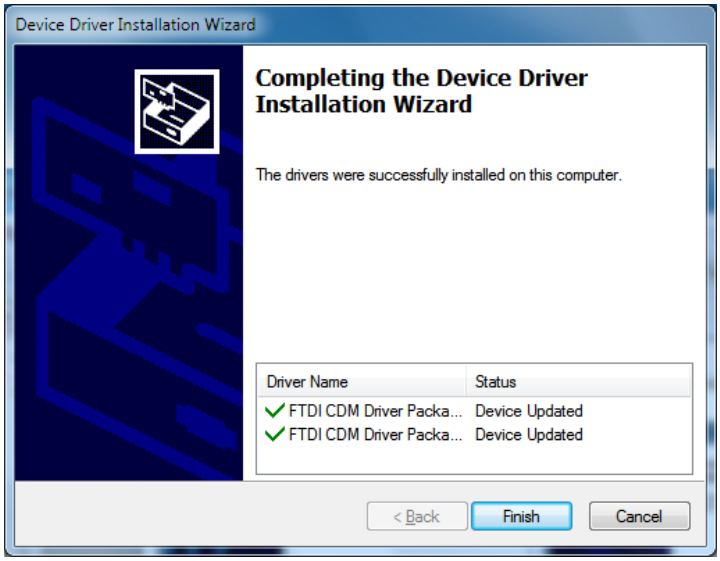



7. Select **Next**.



8. The following dialog box will appear. After installation is completed successfully select **Finish**.

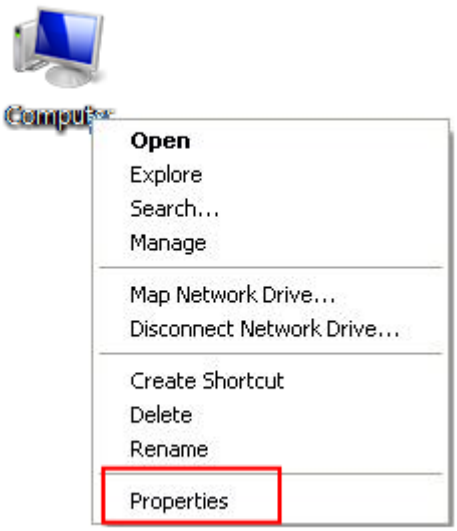


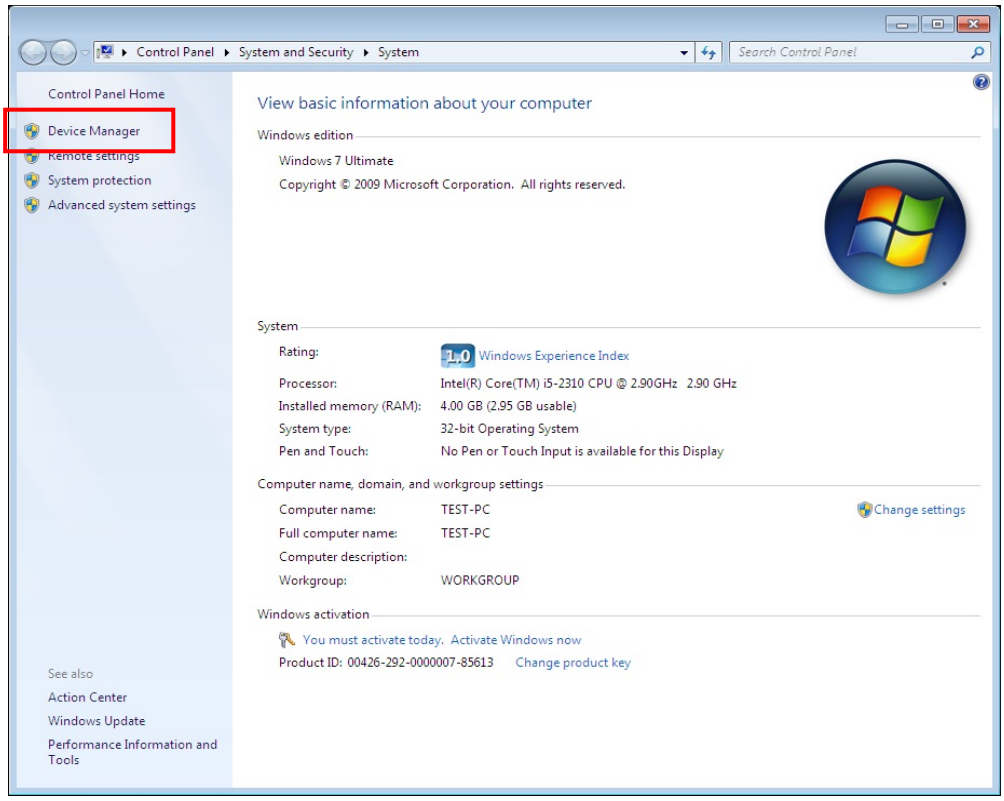

9. Change the USB serial ports after finishing driver setup referring to the following chapter.

# Setting USB Serial Ports

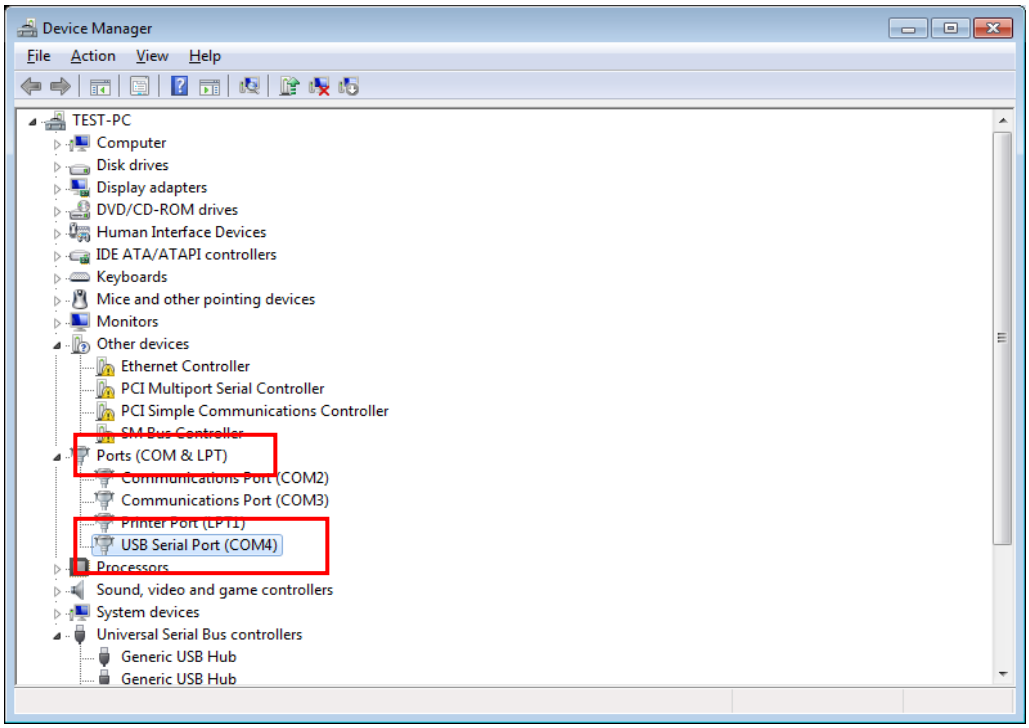
1. Select **Computer →Properties**.



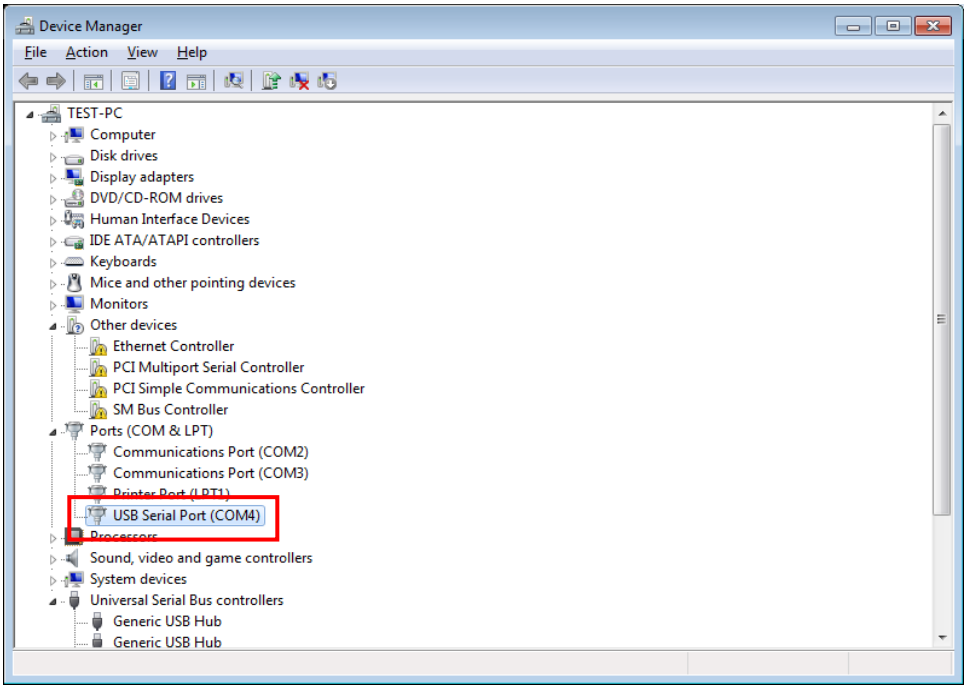

2. Select **Device Manager**.



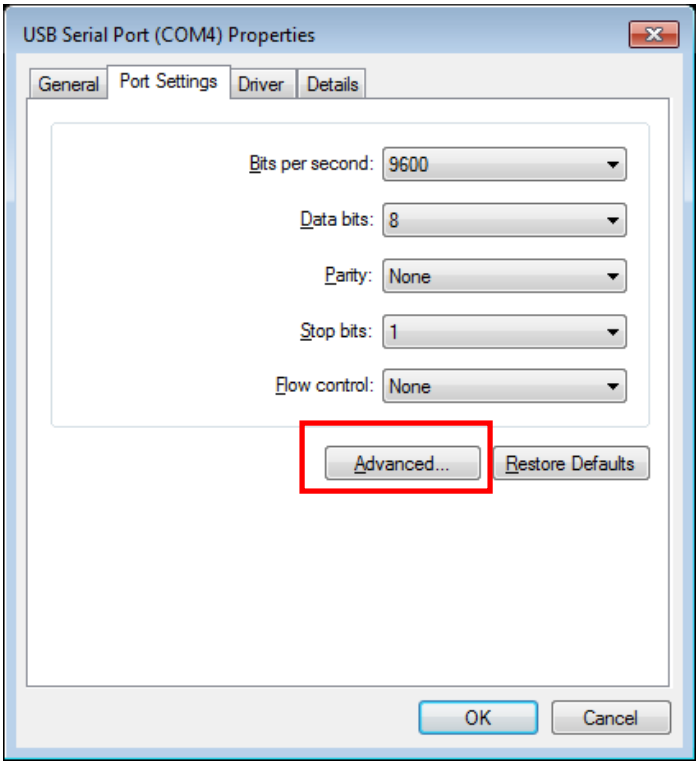
3. Select the **Ports (COM & LPT)** to expand the listing. These are the devices currently connected to the COM ports. **USB Serial Port (COMx)** is visible when the driver installation is completed successfully.



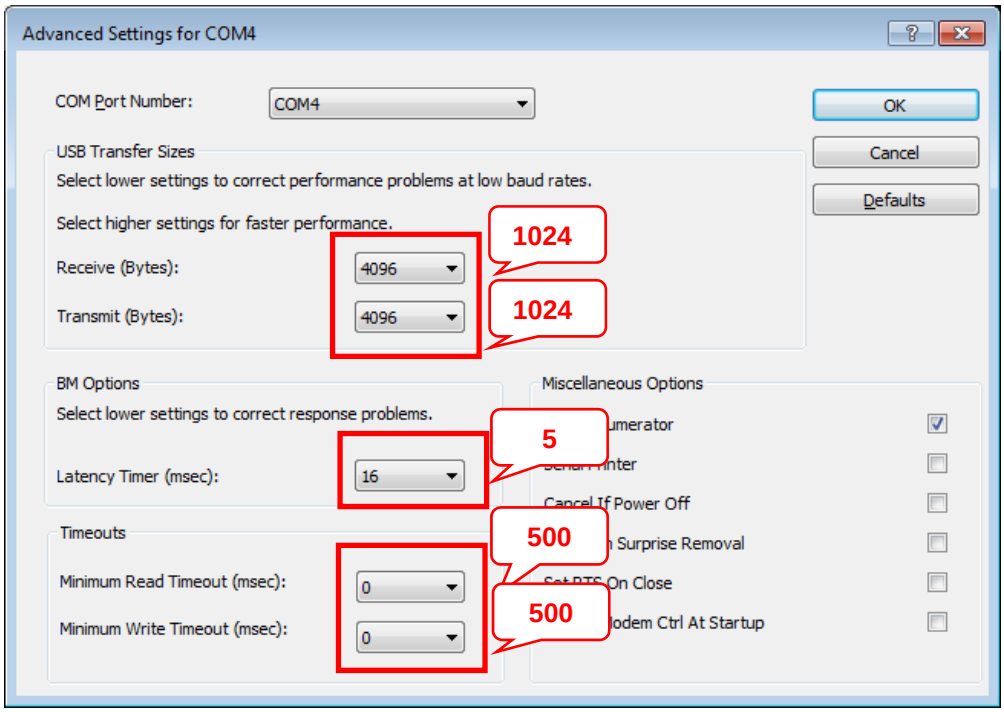

4. Double click **USB Serial Port (COMx)** of the Ports (COM & LPT) section.



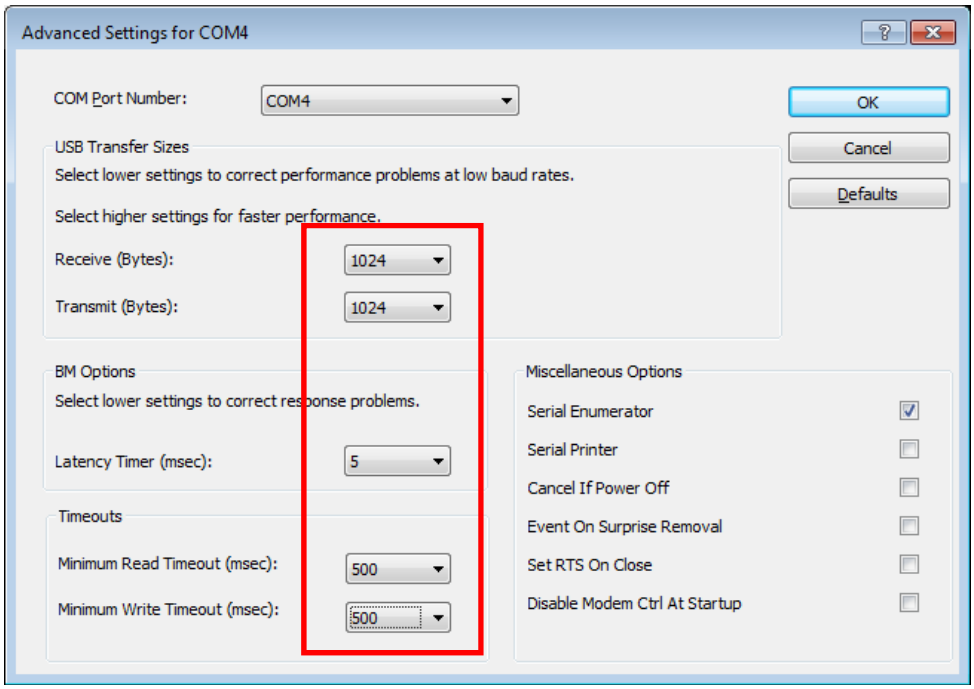
5. Select on the **Port Settings** tab and select the **Advanced…** button.



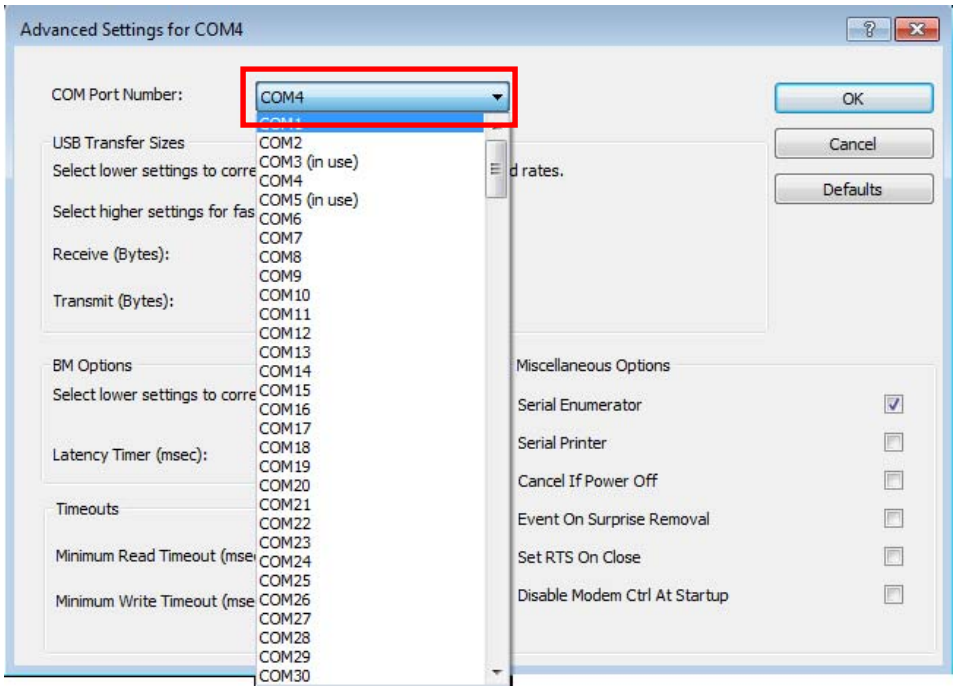

6. Change the parameter values as shown below.



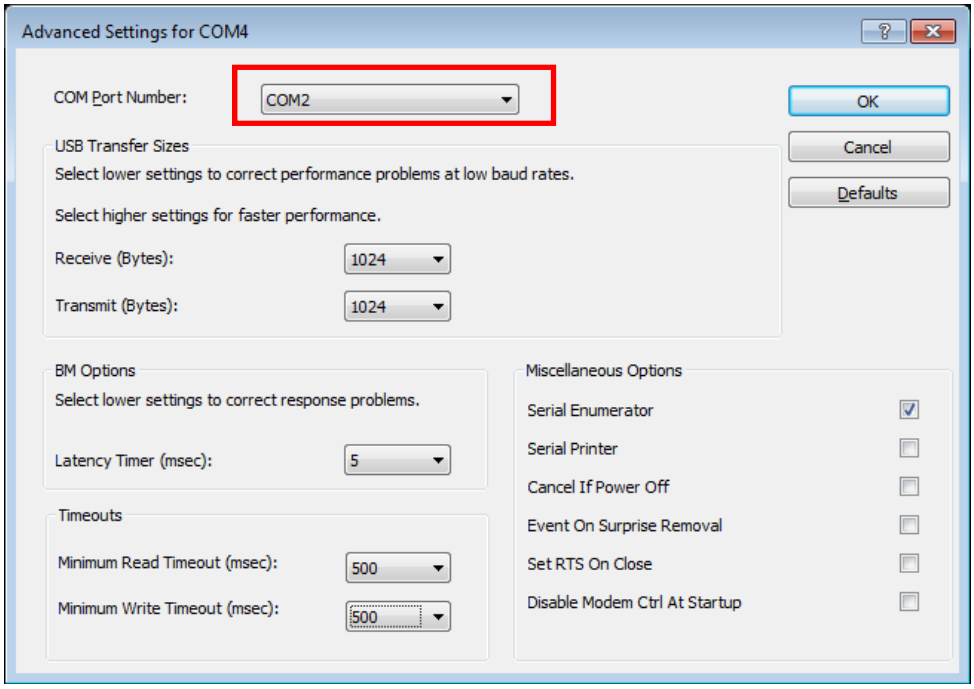
7. Select **OK** after checking the changed parameter values.




8. Launch the software.
9. If the instrument fails to communicate with the PC, change the COM Port Number referring to the following procedures.
10. Open the **Advanced Setting for COMx** window, following the procedure of *Setting USB Serial Ports* on page 36.
11. Select on the **COM Port number** list to expand it and change the COM port number to another one which is not in use from COM 1 to COM 10.



12. Make sure that the changed COM Port Number is applied and select **OK**.



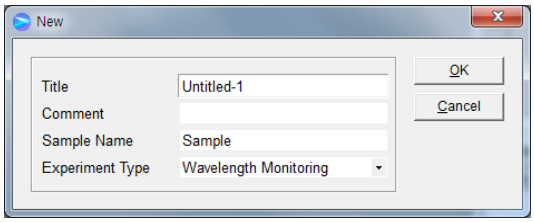

13. Restart the computer after finishing driver setting.

# ***UV Lab Software***

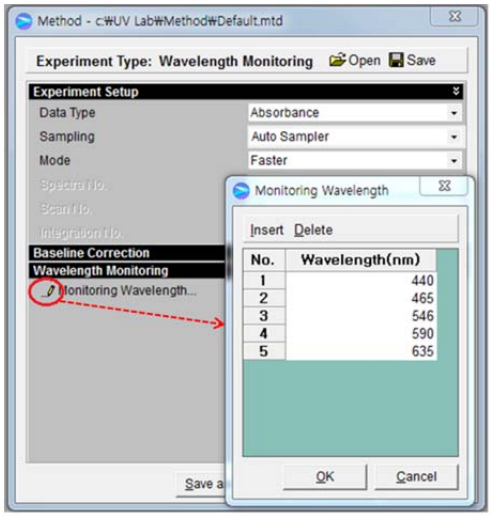
# Wavelength Monitoring Measurement Procedure

**NOTE:** *In case of Lambda 465, start the sample measurement after warming up the system at least 20 minutes.*

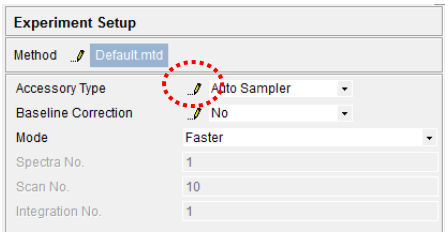
1. Launch the UV Lab Software and then select **Wavelength Monitoring** and click **OK**.



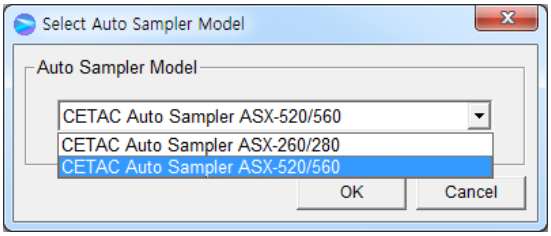

2. After setting parameters for Experiment Setup, Baseline Correction and Wavelength Monitoring, click **OK**.




3. Select **Auto Sampler** in the **Accessory Type** and click **setup button (Pencil icon)** in the **Experiment Setup** on the main screen of the software.

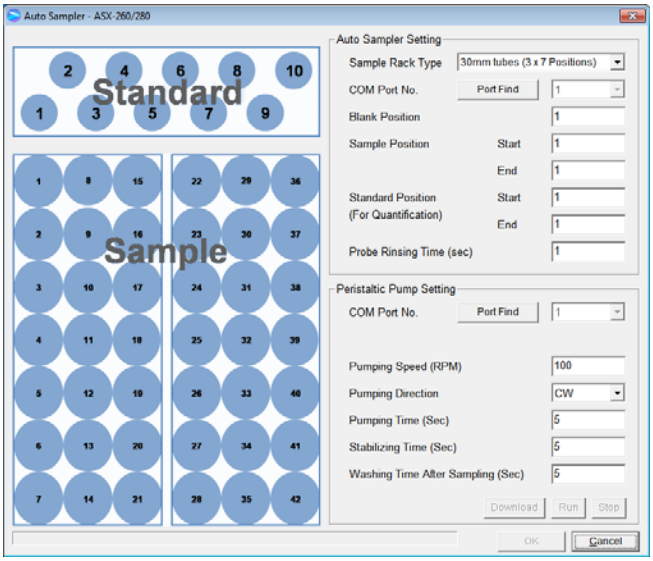



4. Select the autosampler model. Click **OK**.

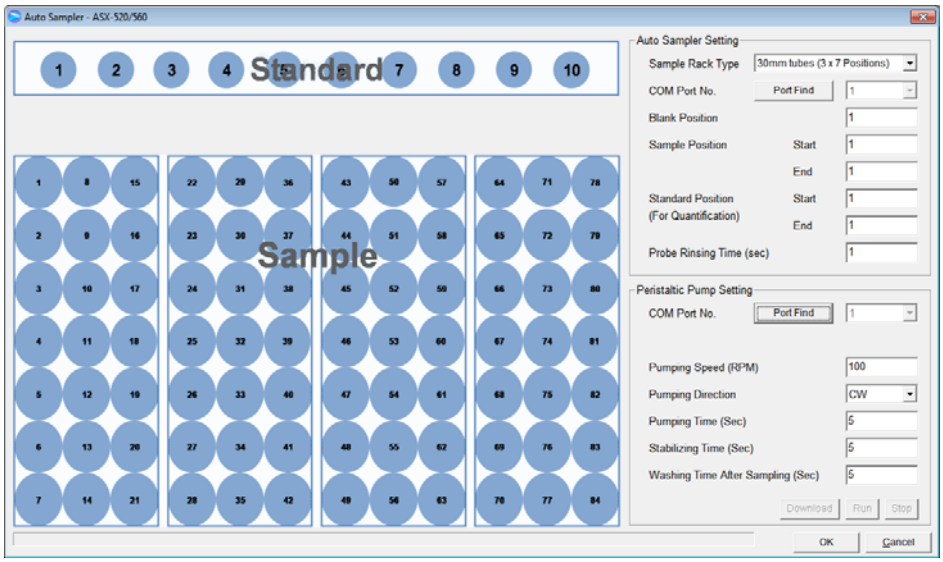


5. The Autosampler setup box will be shown. Set each parameter according to the experiment conditions.

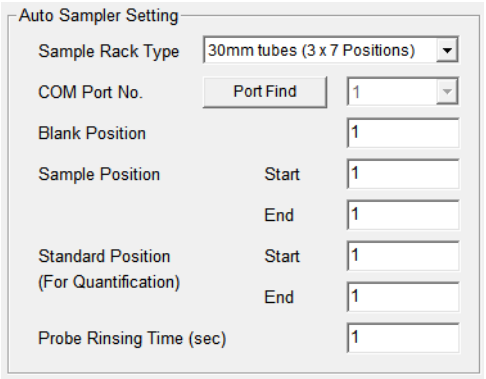
### a. Autosampler (ASX-260/280)




### b. Autosampler (ASX-520/560)




#### 1) Auto Sampler Setting



▶ Sample Rack Type

The following different types are available. Select the desired sample rack type.

1) 30 mm tubes (3 x 7 Positions)
2) 25 mm tubes (3 x 8 Positions)
3) 20 mm tubes (4 x 10 Position)
4) 15 mm tubes (5 x 12 Position)
5) 13 mm tubes (6 x 15 Position)

▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Blank Position: Select the blank position.

▶ Sample Position

Samples are measured form Start Position to End Position in order.

- Start: Select the first sample vial for measurement.
- End: Select the last sample vial for measurement.

▶ Standard Position (For Quantitative Measurement): (1~10)

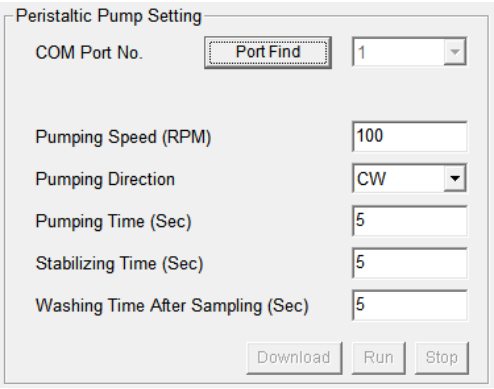
For Quantitative Measurement, Put the standards into the standard position to make the calibration curve.

- Start: Select the first Standard Sample.
- End: Select the last Standard Sample.

▶ Probe Rinsing Time (sec)

If the Probe Rinsing Time is set, the probe will be rinsed after all measurements.
ex) the set time is '0', it won't be rinsed.

**2) Peristaltic Pump Setting**




▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Pumping Speed (RPM): Enter the Pumping Speed. (0.1 ~100)

▶ Pumping Direction: Select the Pumping Direction. You can select either **CW (clockwise)** or **CCW (counter-clockwise)**.

▶ Pumping Time (sec): Enter the pumping time considering the length of tubing from the auto sampler to the flow cell.

▶ Stabilizing Time (sec)

To make stabilization after the blank or sample solution is filled up the cell, enter the suitable stabilizing time. If the time is set as '0', it will be scanned directly without the stabilization.

▶ Washing Time After Sampling (sec)

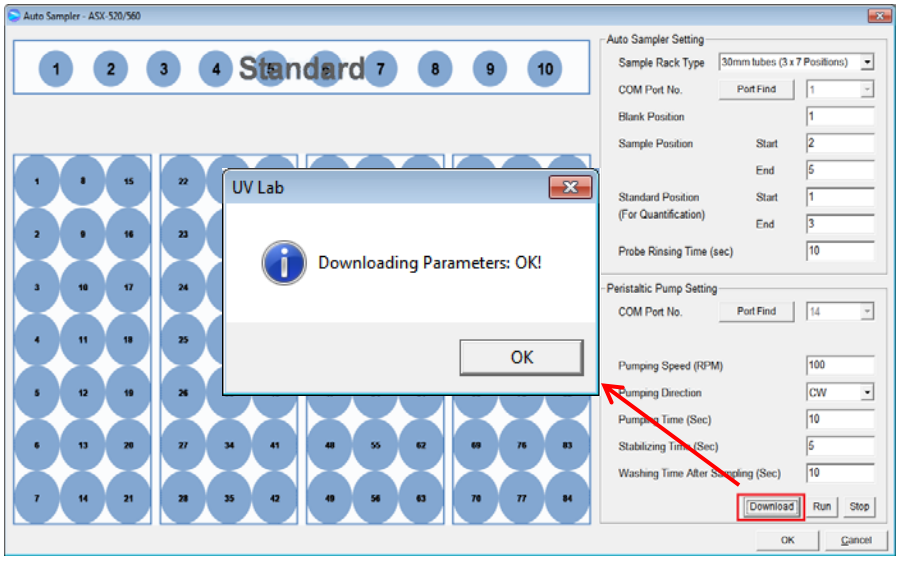
To clean the tube & flow cell after the measurement, you need to set the washing time.

▶ Download: After all set-up, Click **Download** before measurement.

▶ Run: Click **Run** to check if the peristaltic pump is working as set.

▶ Stop: Stop the **Run** test of peristaltic pump.

6. Click **Download** after setting the parameter and then the following box appears. Click **OK**.




**NOTE:** *Click **Download** again when the parameter is changed or COM Port No. is set newly.*

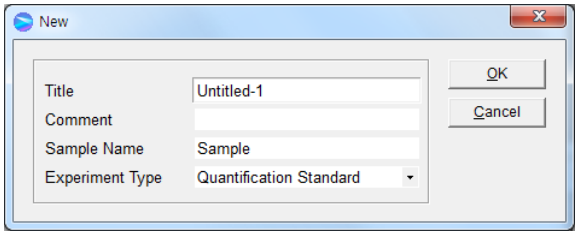
7. Click **OK.**

8. Click **Blank** icon.
9. The probe will move to the blank position and start sucking, and after filling up the flow cell, the blank will be measured.
10. Click **Sample** icon.
11. The probe will move to the first set sample position and start sucking and after filling up the flow cell and the sample will be measured. The sample measurement will continue until the last sample measurement is completed.
12. Save or print the results after all the measurements are finished.

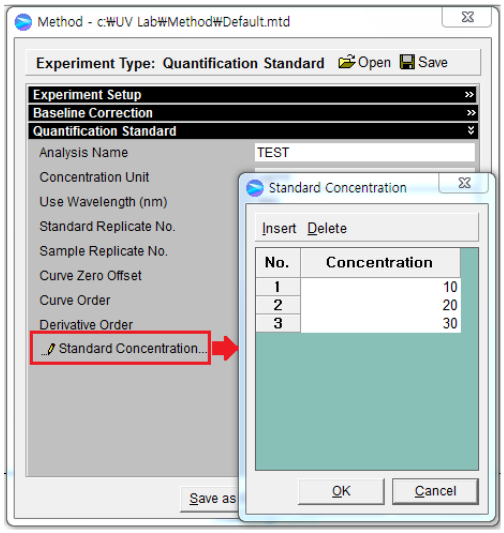
# *Quantification Measurement Procedure*

**NOTE:** *In case of Lambda 465, start the sample measurement after warming up the system at least 20 minutes.*

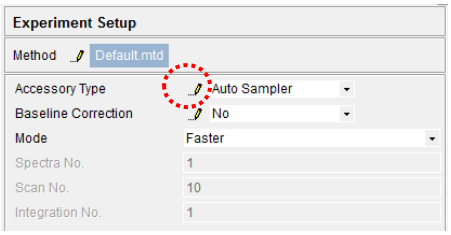
1. Execute the UV Lab Software and then select **Quantification Standard** and click **OK**.



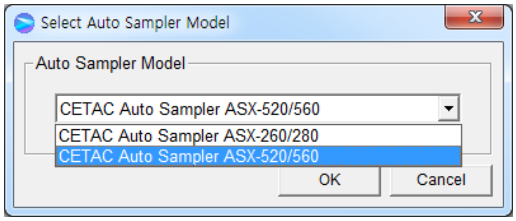

2. After setting parameters for Experiment Setup, Baseline Correction and Quantification Standard, click **OK**. For more detail of Quantification method, refer to UV Lab Software Users Guide.




3. Select **Auto Sampler** in the **Accessory Type** and click **setup button (Pencil icon)** in the **Experiment Setup** on the main screen of the software.

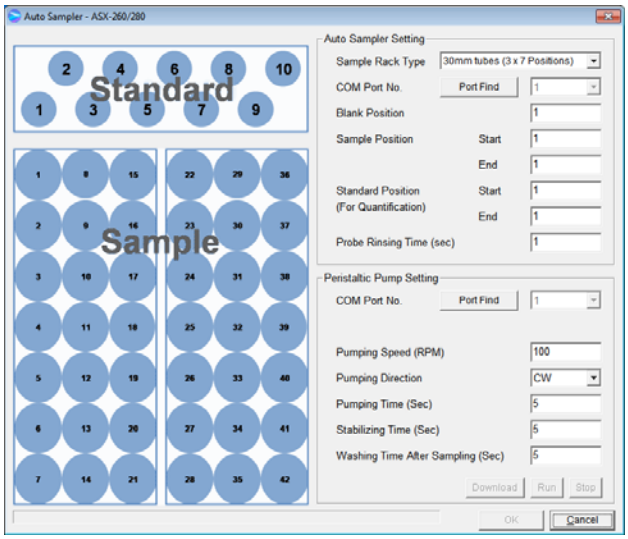



4. Select the Auto Sampler model. Click **OK**.

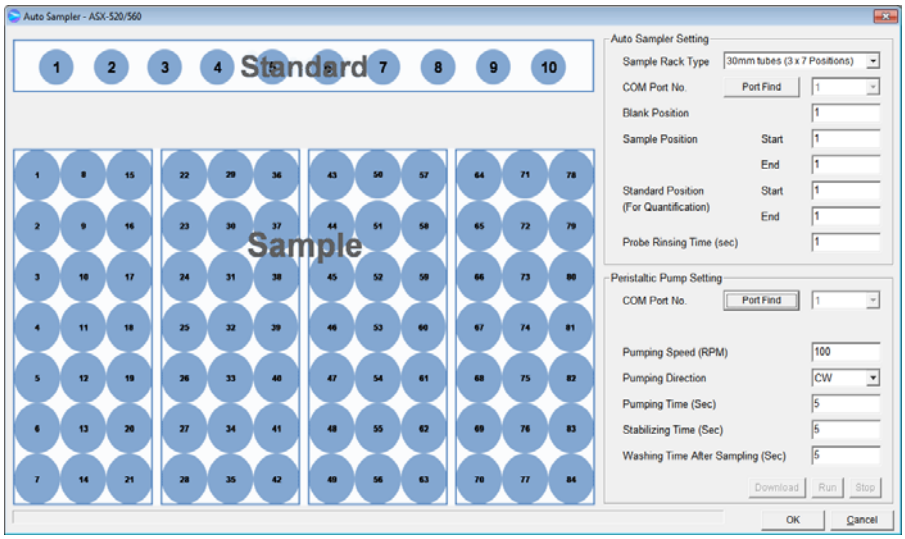


5. The autosampler setup box will be shown. Set each parameter according to the experiment conditions.

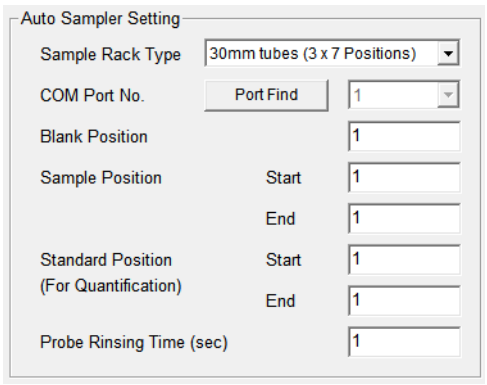
### a. Autosampler (ASX-260/280)




### b. Autosampler (ASX-520/560)




### 1) Auto Sampler Setting



▶ Sample Rack Type

The following different types are available. Select the desired sample rack type.

1) 30 mm tubes (3 x 7 Positions)
2) 25 mm tubes (3 x 8 Positions)
3) 20 mm tubes (4 x 10 Position)
4) 15 mm tubes (5 x 12 Position)
5) 13 mm tubes (6 x 15 Position)

▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Blank Position: Select the blank position.

▶ Sample Position:

Samples are measured form Start Position to End Position in order.

- Start: Select the first sample vial for measurement.
- End: Select the last sample vial for measurement.

▶ Standard Position (For Quantitative Measurement): (0~10)

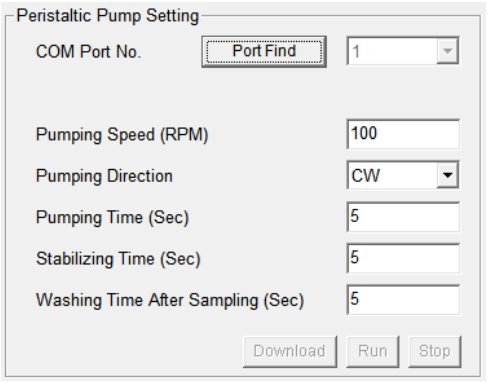
For Quantitative Measurement, Put the standards into the standard position to make the calibration curve.

- Start: Select the first Standard Sample.
- End: Select the last Standard Sample.

▶ Probe Rinsing Time (sec)

If the Probe Rinsing Time is set, the probe will be rinsed after all measurements.
ex) the set time is '0', it won't be rinsed.

### 2) Peristaltic Pump Setting




▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Pumping Speed(RPM): Enter the Pumping Speed. (1~100)

▶ Pumping Direction: Select the Pumping Direction. You can select either **CW (clockwise)** or **CCW (counter-clockwise)**.

▶ Pumping Time (sec): Enter the pumping time considering the length of tubing from the auto sampler to the flow cell.

▶ Stabilizing Time (sec)

To make stabilization after the blank or sample solution is filled up the cell, enter the suitable stabilizing time. If the time is set as '0', it will be scanned directly without the stabilization.

▶ Washing Time after Sampling (sec)

To clean the tube and flow cell after the measurement, you need to set the washing time.

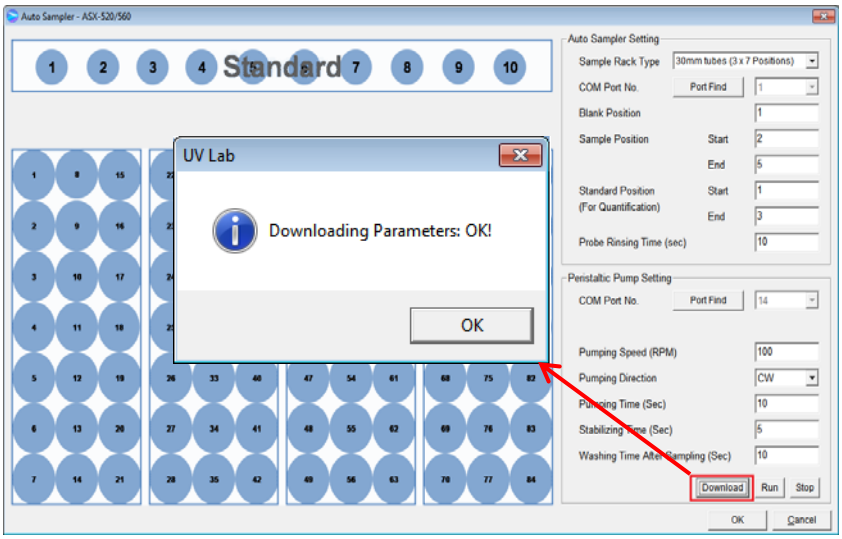
▶ Download

After all set-up, Click **Download** before measurement.

▶ Run: Click **Run** to check if the peristaltic pump is working as set.

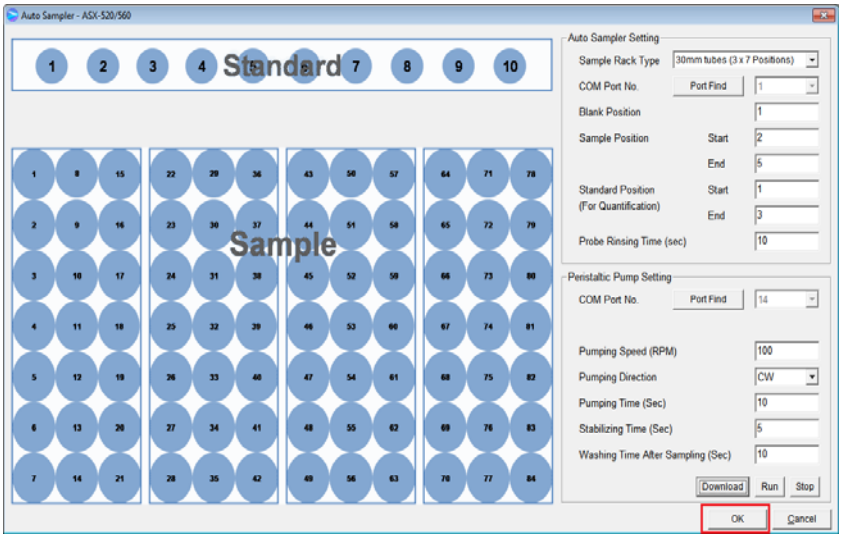
▶ Stop: Stop the 'Run' test of peristaltic pump.

6. Click **Download** after setting the parameter and then the following box appears. Click **OK**.




**NOTE:** Click **Download** again when the parameter is changed or COM Port No. is set newly.

7. Click **OK**.



8. Click **Blank**.
9. The probe will move to the blank position and start sucking and, after filling up the flow cell, the blank will be measured.
10. Click **Standard**.

**NOTE:** *User can set up to 10 standard samples in the Autosampler. The number of standards should be matched with the number of concentration entry in the Quantification Standard set-up windows.*

11. The probe will move to the first set standard position and start sucking and after filling up the flow cell and the standard will be measured. The standard measurement will continue until the last standard measurement is completed.
12. After all standards measurements, click **Quantification Sample** mode.
13. Click **Blank**.
14. The probe will move to the blank position and start sucking and, after filling up the flow cell, the blank will be measured.
15. Click **Sample**.
16. The probe will move to the first set sample position and start sucking and after filling up the flow cell and the sample will be measured. The sample measurement will continue until the last sample measurement is completed.
17. Save or print the results after finished.

# ***UV Express Software***

# Scan and Wavelength Program Mode Measurement Procedure

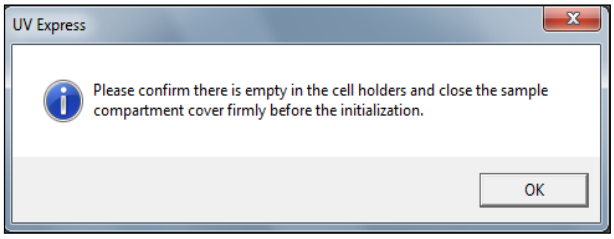
**NOTE:** *Auto Sampler accessory is available to be controlled in Scan, Wavelength Program, Quantification and Scanning Quantification mode of UV Express software.*

**NOTE:** *Start the **System Self Test** after more than 20 minutes warming-up of the system.*

1. Double-click **UV Express** folder and select **Scan (or Wavelength Program)** modes for starting.

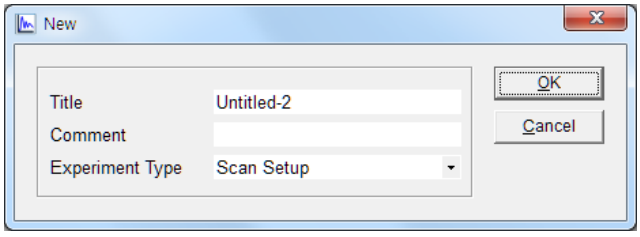
2. The following window will be shown. Empty the cell holder and close the lid firmly.

**NOTE:** *When performing System Self Test, both reference and sample cell holder have to be emptied. Please remove cuvettes including the flow cell from cell holder.*



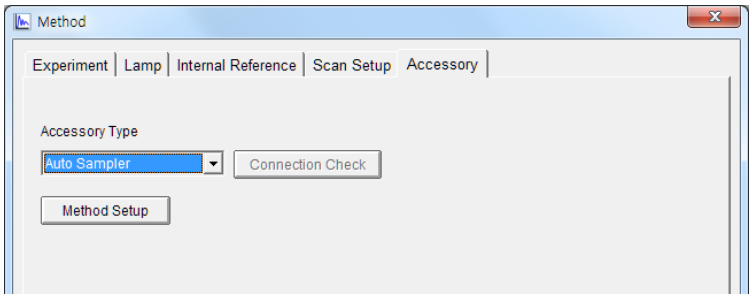

3. Click **OK** after finishing the System Self Test.

4. Click **New** to open a new window. Select “Experiment Type” and click **OK**.

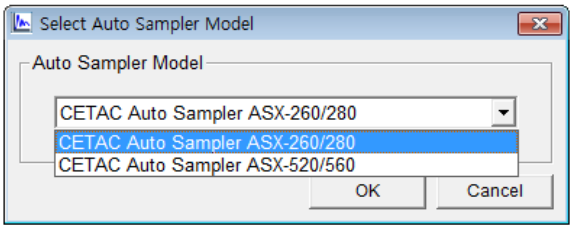



5. Click **Method** for set up parameter and then click **Accessory** tab. For more detail of method refer to UV Express Software Users Guide.

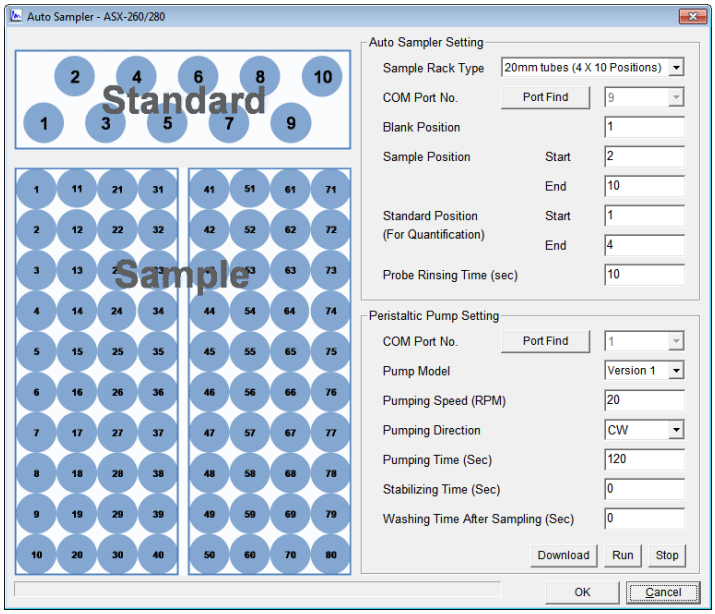
6. Select the **Auto Sampler** accessory in the **Accessory tab** and then Click **Method Setup**.



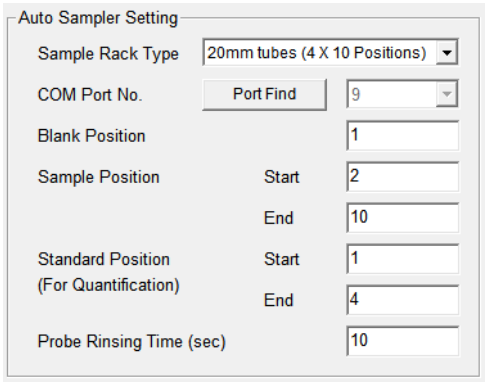
7. Select the Auto Sampler model (ASX-260/280, as example). Click **OK**.




8. The Auto Sampler setup box will be shown. Set each parameter according to the experiment conditions.




### 1) Auto Sampler Setting




▶ Sample Rack Type

The following different types are available. Select the desired sample rack type.

1) 30 mm tubes (3 x 7 Positions)
2) 25 mm tubes (3 x 8 Positions)
3) 20 mm tubes (4 x 10 Position)
4) 15 mm tubes (5 x 12 Position)
5) 13 mm tubes (6 x 15 Position)

▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Blank Position: Select the blank position.

▶ Sample Position

Samples are measured form Start Position to End Position in order.

- Start: Select the first sample vial for measurement.
- End: Select the last sample vial for measurement.

▶ Standard Position (For Quantitative Measurement only): (1~10)

For Quantitative Measurement, Put the standards into the standard position to make the calibration curve. It is not available in **Scan** and **Wavelength Program** mode.

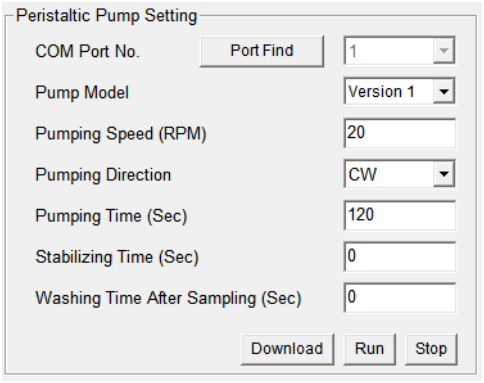
- Start: Select the first Standard Sample.
- End: Select the last Standard Sample.

▶ Probe Rinsing Time (sec)

If the Probe Rinsing Time is set, the probe will be rinsed after all measurements.

ex) the set time is '0', it won't be rinsed.

### 2) Peristaltic Pump Setting




▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Pump Model: Pump model is fixed. (Version1).

▶ Pumping Speed(RPM): Enter the Pumping Speed. (0.1~100)

▶ Pumping Direction: Select the Pumping Direction. You can select either **CW (clockwise)** or **CCW (counter-clockwise)**.

▶ Pumping Time (sec): Enter the pumping time considering the length of tubing from the auto sampler to the flow cell.

▶ Stabilizing Time (sec)

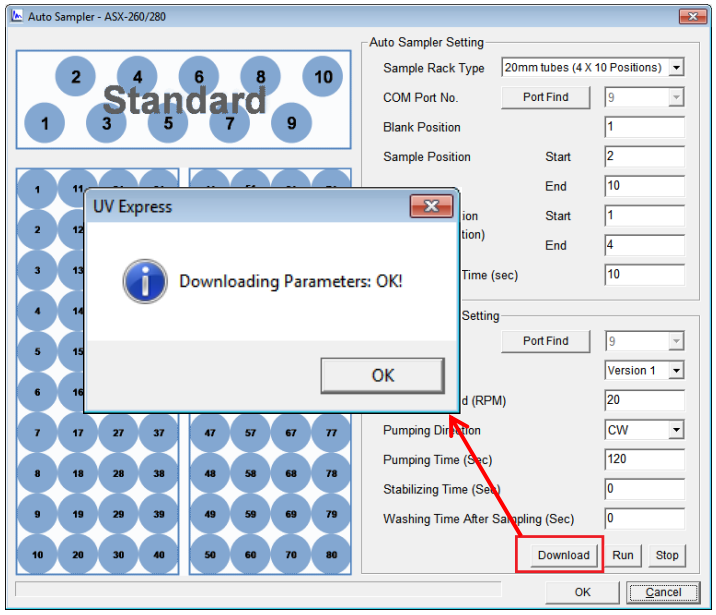
To make stabilization after the blank or sample solution is filled up the cell, enter the suitable stabilizing time. It recommends more than 20 sec. If the time is set as '0', it will be scanned directly without the stabilization.

- ▶ Washing Time after Sampling (sec)

  To clean the tube & flow cell after the measurement, you need to set the washing time.

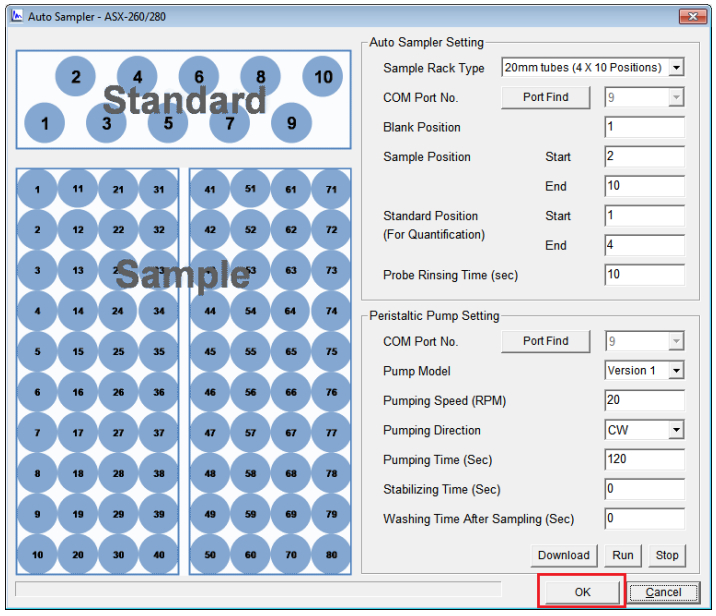
- ▶ Download: After all set-up, Click **Download** before measurement.
- ▶ Run: Click **Run** to check if the peristaltic pump is working as set.
- ▶ Stop: Stop the 'Run' test of peristaltic pump.

9. Click **Download** after setting the parameter and then the following box appears. Click **OK**.

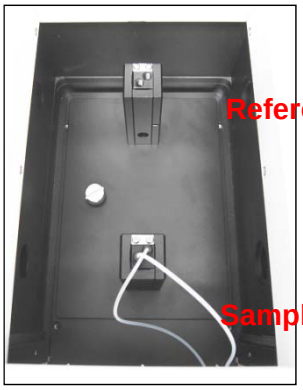



**NOTE:** *Click **Download** again when the parameter is changed or COM Port No. is set newly.*

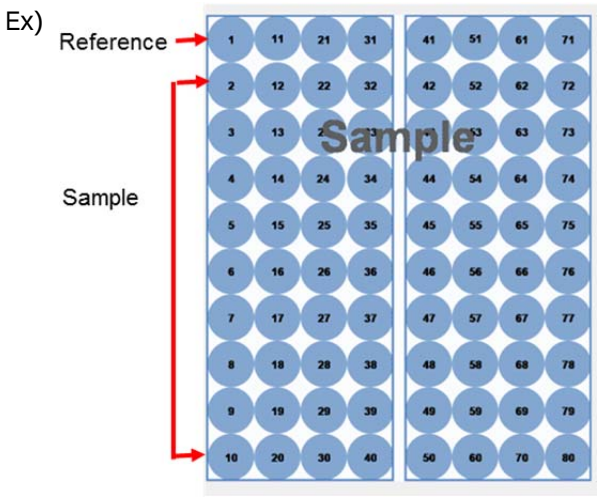
10. Click **OK**.



11. Insert reference sample in the Reference cell holder.




12. Insert reference sample in the set Blank Position (e.g. position 1) and sample in each position of the Autosampler sample racks.




13. Click **Baseline**.
14. The probe will move to the Blank position and start sucking, and after filling up the flow cell, the Baseline will be measured.
15. After checking the baseline data, click **Sample**.
16. The probe will move to the first set sample position and start sucking, and after filling up the flow cell, the sample will be measured. The sample measurement will continue until the last sample measurement is completed.
17. Save or print the results after all the measurement are finished.

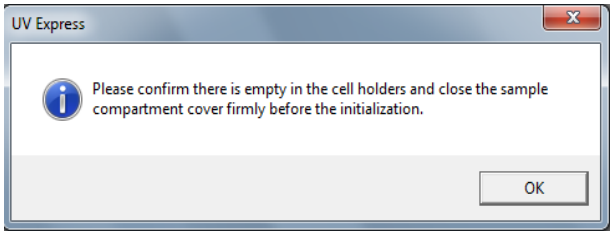
# *Quantification and Scanning Quantification Mode Measurement Procedure*

**NOTE:** *Start the **System SefIf Test** after more than 20 minutes warming-up of the system.*

1. Double-click **UV Express** folder and select **Quantification (or Scanning Quantification)** modes for starting.

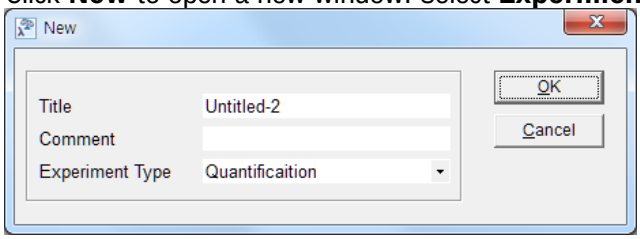
2. The following window will be shown. Empty the cell holder and close the lid firmly.

**NOTE:** *When performing System Self Test, both reference and sample cell holder have to be emptied. Please remove cuvettes including the flow cell from cell holder.*



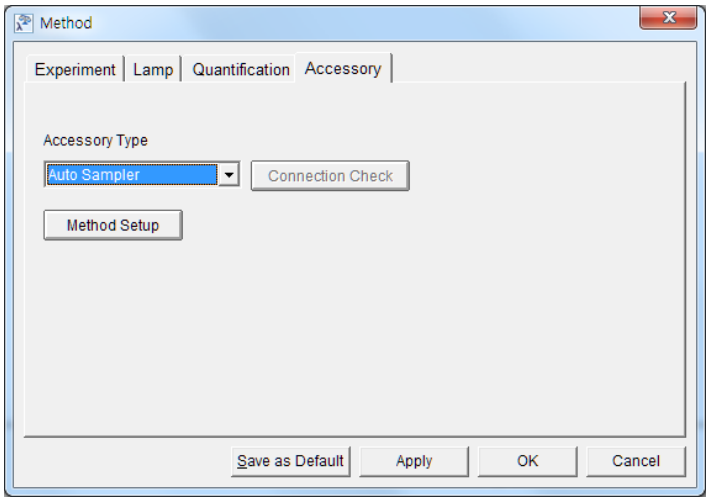

3. Click **OK** after finishing the System Self Test.

4. Click **New** to open a new window. Select **Experiment Type** and click **OK**.

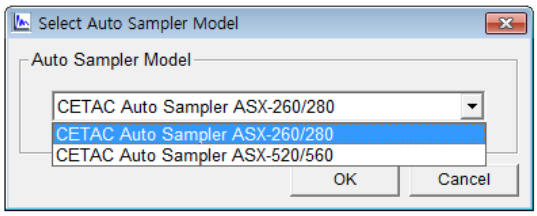



5. Click **Method** and set up parameters. For more detail of Quantification method, refer to *UV Express Software Users Guide*.

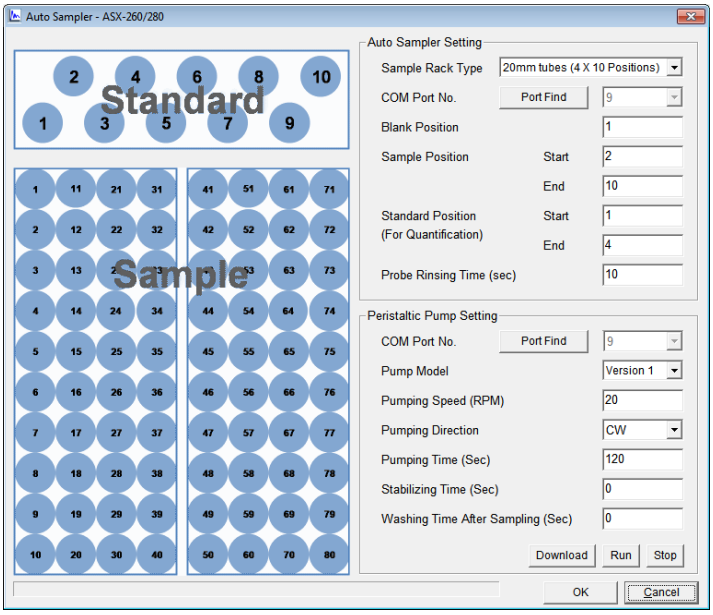
6. Select **Auto Sampler** in the **Accessory tab** and then click **Method setup**.



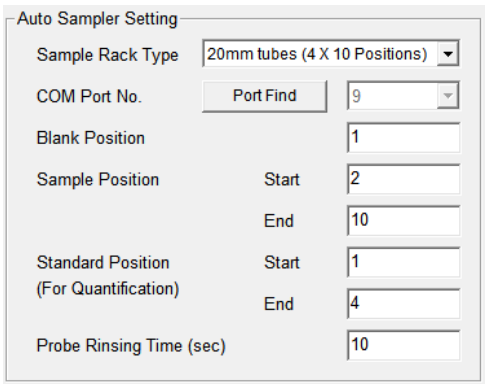
7. Select the Auto sampler model. Click **OK**.




8. The Autosampler setup box will be shown. Set each parameter according to the experiment conditions.




### 1) Auto Sampler Setting




▶ Sample Rack Type

The following different types are available. Select the desired sample rack type.

1) 30 mm tubes (3 x 7 Positions)
2) 25 mm tubes (3 x 8 Positions)
3) 20 mm tubes (4 x 10 Position)
4) 15 mm tubes (5 x 12 Position)
5) 13 mm tubes (6 x 15 Position)

▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Blank Position: Select the blank position.

▶ Sample Position

Samples are measured form Start Position to End Position in order.

- Start: Select the first sample vial for measurement.
- End: Select the last sample vial for measurement.

▶ Standard Position (For Quantitative Measurement): (1~10)

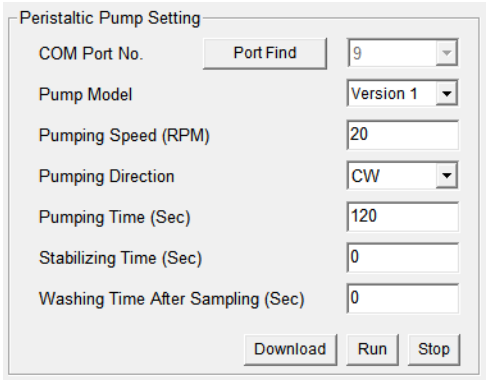
For Quantitative Measurement, Put the standards into the standard position to make the calibration curve.

- Start: Select the first Standard Sample.
- End: Select the last Standard Sample.

▶ Probe Rinsing Time (sec)

If the Probe Rinsing Time is set, the probe will be rinsed after all measurements.
ex) the set time is '0', it won't be rinsed.

### 2) Peristaltic Pump Setting




▶ COM Port No.: Click **Port Find**. The COM port no. will be selected automatically.

▶ Pump Model: Pump model is fixed. (Version1).

▶ Pumping Speed (RPM): Enter the Pumping Speed. (0.1 ~100)

▶ Pumping Direction: Select the Pumping Direction. You can select either **CW (clockwise)** or **CCW (counter-clockwise)**.

▶ Pumping Time (sec): Enter the pumping time considering the length of tubing from the auto sampler to the flow cell.

▶ Stabilizing Time (sec)

To make stabilization after the blank or sample solution is filled up the cell, enter the suitable stabilizing time. It recommends more than 20 sec. If the time is set as '0', it will be scanned directly without the stabilization.

- ▶ Washing Time after Sampling (sec)

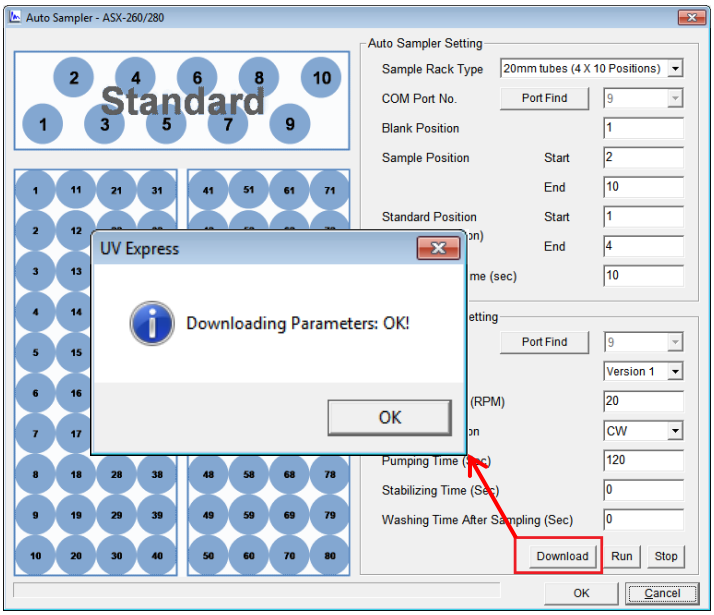
  To clean the tube & flow cell after the measurement, you need to set the washing time.

- ▶ Download

  After all set-up, Click **Download** before measurement.

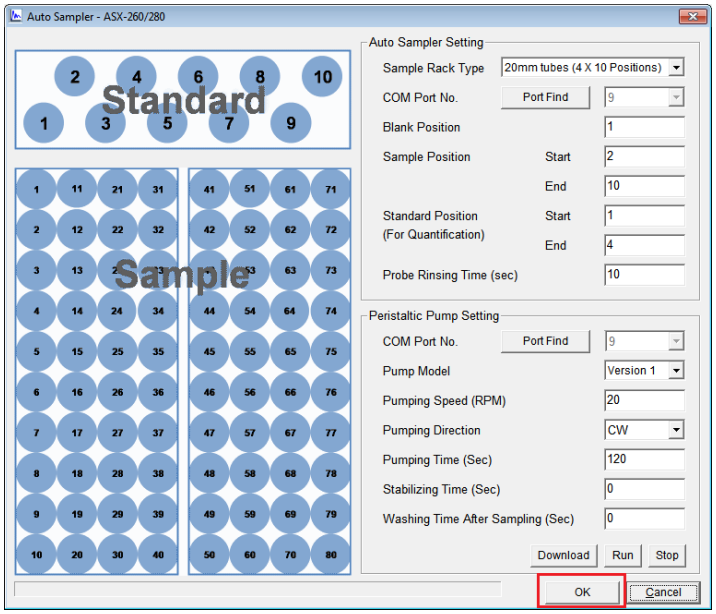
- ▶ Run: Click **Run** to check if the peristaltic pump is working as set.
- ▶ Stop: Stop the 'Run' test of peristaltic pump.

9. Click **Download** after setting the parameter and then the following box appears. Click **OK**.

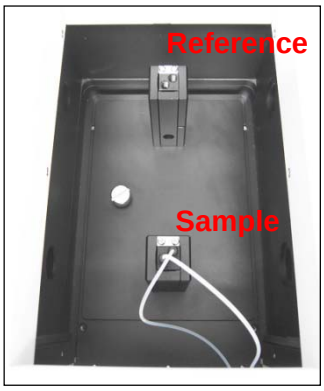



**NOTE:** *Click **Download** again when the parameter is changed or COM Port No. is set newly.*

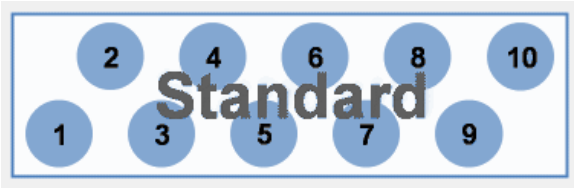
10. Click **OK**.




11. Insert reference sample in the reference cell holder.

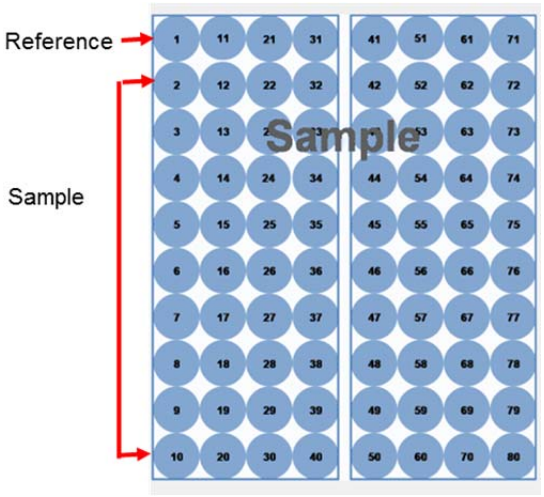



12. Insert the standard samples in the autosampler standard rack.




13. Insert reference sample in the set Blank Position (e.g. position 1) and samples in each position of the Autosampler sample racks.

Ex)




14. Click **Baseline**.

15. The probe will move to the Blank position and start sucking, and after filling up the flow cell, the Baseline will be measured.

16. After checking the baseline data, click **Standard**.

**NOTE:** *User can set up to 10 standard samples in the Autosampler. The number of standards should be matched with the number of concentration entry in the Quantification Standard set-up windows.*

17. The probe will move to the first set standard position and start sucking and after filling up the flow cell and the standard will be measured. The standard measurement will continue until the last standard measurement is completed.

18. After finishing all standards measurements, click **Sample**.

19. The probe will move to the first set sample position and start sucking and after filling up the flow cell and the sample will be measured. The sample measurement will continue until the last sample measurement is completed.

20. Save or print the results after finished.

# ***Maintenance***

# Maintenance

The tube for transportation of solution to peristaltic pump and autosampler is flexible and prone to tear, so this tube needs to be replaced periodically. The replacement period depends on the tubing shape, material, diameter and used time.

Great care should be taken that contaminants do not flow in the autosampler and tube. These contaminants would be caused for the damage of autosampler or tubing.

The autosampler's external surface needs to be cleaned with soft tissues only.

You should wash the tube, probe and flow cell by flowing rinse solution periodically.