OPTIZEN POP

User's Guide

June 2011 (3st edition)
Mecasys Co., Ltd.

Better solutions
in Spectroscopic analysis
MECASYS

Chemitech IT Perdana
Service Laboratorium Instrument
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Notice!

For more detail information on Optizen® and OptizenView™,
you may refer to “Technical Support”
in the last Chapter of this guide or visit our websites below.

http://english.mecasys.co.kr

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Part Ⅰ. Introduction & General Information

1. Introduction

Thank you for purchasing UV/VIS Spectrophotometer, Optizen POP!
Optizen Series can be applied various fields from a simple examination like a water quality analysis to a complex examination like a bio-chemical analysis. User can measure easier, faster, and more accurate by convenient interface and auto-function.
OPTIZEN POP provides you rich visual contents with 7 inch color LCD and easy operating with touch screen function. And Windows CE system, which is powerful and stable, enables 2GB of standard memory, USB data backup, user friendly interface, network operation and so on.
OPTIZEN POP also provides you on-line diagnosis and upgrade via network connection.

Usage of the manual

This manual includes the instructions of system installation, operation, experiment setting, data editing and so on.
Mecasys Co., Ltd. will continuously support update via mail, internet or e-mail.

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2. Specifications

Photometrics System	Single Beam Type
Spectral Bandwidth	<1.8nm
Wavelength	
Range	190~1100nm
Accuracy	<± 0.5nm (at D2 Peak 656.1nm, 486.0nm)
Reproducibility	<± 0.1nm
Setting	≤ 0.1nm
Slew Rate	About 7,800nm/min
Scanning Speed	Max 4,000nm/min
Photometric	
Range	-3.0 ~ 3.0 ABS (Enable to Set Up)
Accuracy	± 0.005 ABS (at 1.0 ABS)
Reproducibility	± 0.003 ABS (at 1.0 ABS)
Stray Light	< 0.05%T (220nm, 340nm)
Baseline Stability	<± 0.001ABS/h (at 550nm)
Baseline Flatness	<± 0.002 ABS (200 ~ 1100nm)
Light Source	Tungsten-Halogen & Deuterium Lamp
Lamp Change Wavelength	340~410nm (Default 370nm), including Auto Position System
Monochromator	Modified Czerny-Turner type with 1200lines/mm blazed Grating
Standard Cell Holder	Rotary type 8 position Multi Cell Holder
Interface	4 USB ports / 3 RS-232C ports
Data Capacity	2 Giga byte (8 Giga byte – Optional)
Detector	Silicone Photodiode
Power Requirement	Free Voltage
Dimensions	433(W) x 381(D) x 180(H)mm
Weight	8kg

3. Constructions

1) External Construction

① Optional Acrylic Plate
② 7 Inch LCD (Touch Screen)

Main

① 4 USB PORT

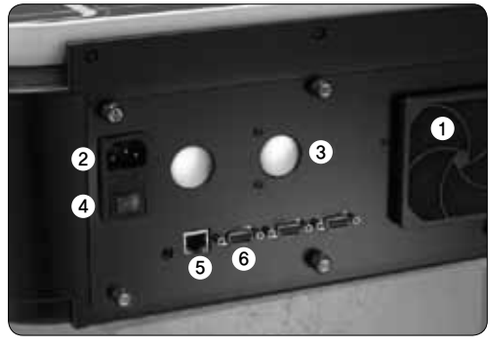
Right Side

① One-Touch Type Sample Compartment Cover
② 8-position Rotary Type Multi cell Holder

Left Side

① Remove Type Front Cover

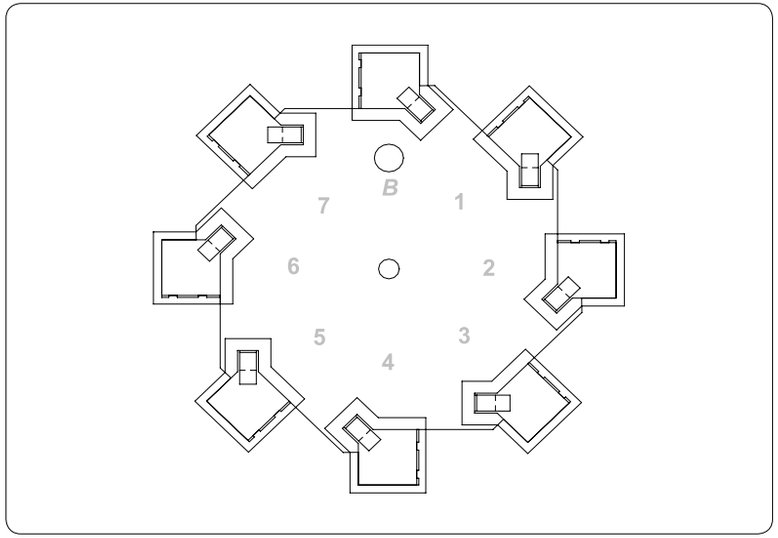
Front Cover

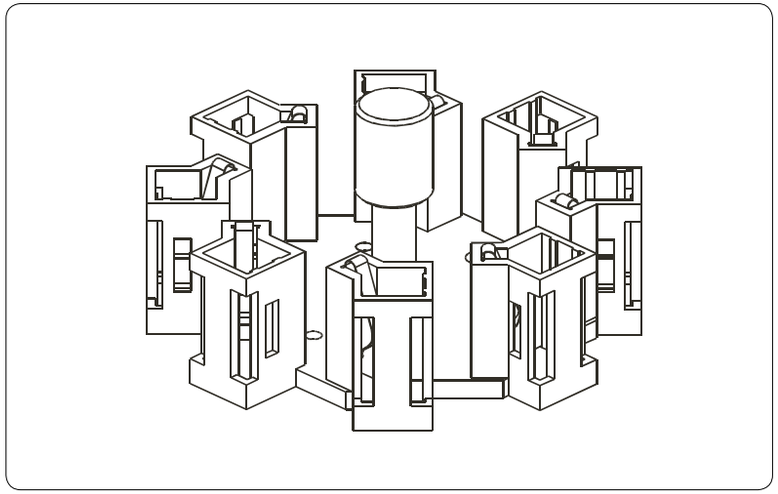


① Fan
② Power connection
③ Speaker
④ Main Power
⑤ Ethernet
⑥ Port for Accessory

Rear Plate

2) Cell Holder





4. Turning on Switch

It is self-tuning about CPU & ROM, Wavelength, Cell, Filter, D2 Lamp, and W Lamp. Results of self-tuning indicate Complete or Error. Incase Error occurs at any step, self-tuning is stopped. If you want to check next step, push [ENTER] button. Only everything is Complete, automatically move to Main Mode.

To get more stable data,

please warm up the system about 30 minutes after turning on the switch.

- **CPU _ROM : Check CPU & ROM**
- **WAVE MOTER : Wavelength motor driving test**
- **CELL MOTER : Multi-Cell Holder driving test**
- **FILTER MOTER : Filter driving test**
- **W LAMP : Check the status of Tungsten-halogen Lamp**
- **D2 LAMP : Check the status of Deuterium Lamp**
- **D2 WAVE : Check the status of Deuterium Lamp Wave**

Part II. Optizen POP Usage

1. Main

Name	Description
ATC	ATC mode leads to measure absorption, transmittance, and concentration at selected wavelength with measuring samples.
STC	STC mode leads to draw standard curve with known concentration. Selected standard curve is applied to ATC mode to get the value of concentration.
SUR	This leads to make graph at the specific wavelength ranges. At each selected wavelength range, transmittance and absorption are valued.
KIN	Kinetic mode allows getting variable with time differences.
Favorite	Favorite file
PC-Link	Connect Optizen POP to PC. You can operate OPTIZEN POP via PC software. Pc software should be purchased separately.
POP Set	POP Setting (Application, Device & calibration setting)
UV /Vis	When only visible ray range is necessary, save life span of lamp for ultraviolet ray with power saving mode, color of the button indicating UV will turn into gray faded.
File Browser	It is possible to copy or delete the file between internal and external storage devices.

2. ATC Mode

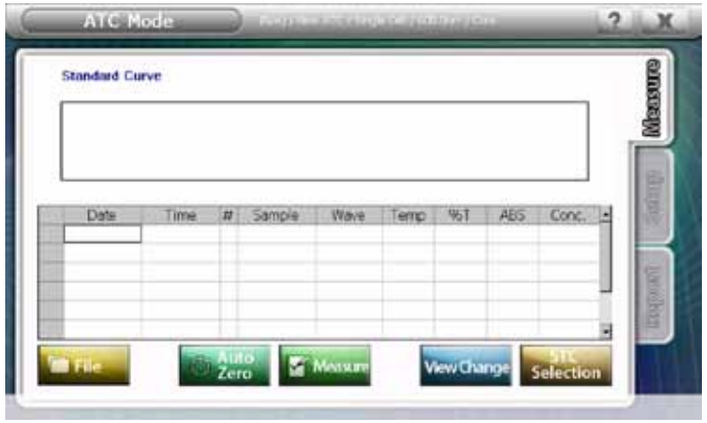
ATC mode leads to measure absorption, transmittance, and concentration at selected wavelength with measuring samples.

1. Single wave or multi wave mode is selectable upon touching ATC icon.

2-1. ATC Mode (Single Wave Mode)

1) Measure

ATC mode leads to measure absorption, and transmittance.



Name	Description
Date	Date
Time	Time
#	Cell No. or Cell type
Sample	Name of sample
Wave	Wavelength
Temp	Temperature of Cell Box during measurement

• Input name of sample

: Input name of sample by double clicking box and opening touch keyboard

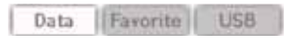
Name	Description
File	Open data.
Auto Zero	Measure blank sample as auto zero.
Measure	Input sample to measure.
View Change	Select to display graph with table form, graph, or table form.
STC Selection	Move to STC manager. Check absorption, transmittance of a sample by applying measured standard curve or creating new standard curve.

• Open/save file

Open File

1. Touch 

.

2. Select the storage device 

to open the file from.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click the file to open. Check the file name at 

.

5. Touch 

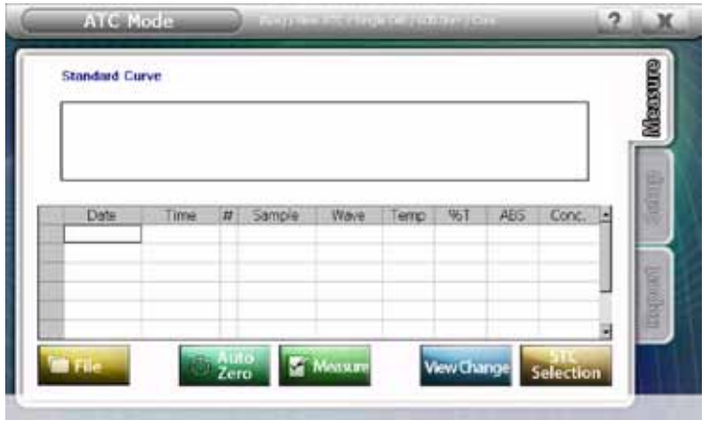
.

6. Touch 

to eliminate the file.

Save file

1. Touch [File] .



2. Select the storage device [Data] [Favorite] [USB] to save the file to.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click **Name** [ ] to input file name. Or select the file to be overwrited. Check the file name at **Name** [ ] .

5. Check at [ ] .CSV to save as excel form.

6. Touch [Save] to store.

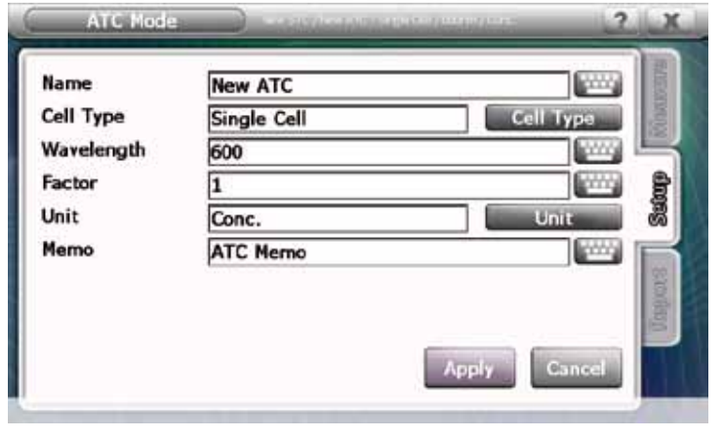
7. Touch [Delete] to eliminate the file.

2) Setup

Measuring condition

This step allows setting factors to be applied for measurement.

Set up file name, cell type, wavelength, factor, unit and memo.



Name	Description	Details
Name	After touch the keyboard button, input file name with keyboard.	
Cell Type	After select type of cell. Touch [Apply] to set up options.	Default cell type is single cell. (Ref : 6. Cell type - 71page)
Wavelength	Input wavelength range you want to use with keyboard.	Default wavelength is 600nm, and default wavelength range is 190~1100nm.
Factor	Input diluting number and / or other factors, value of concentration.	
Unit	Input or select unit. Touch unit to select unit for measurement.	
Memo	Touch keyboard box to write brief information on measurement.	

Modify Unit

9 conventional units are ready to use as main units.

If there are other units to be used, modification is available. Modification of unit

1. Touch Unit .

2. If you need to change unit, touch .

3. Select unit number to change, then double click allows to keyboard box to appear.

4. Input unit with keyboard box then enter.

5. Touch Apply to apply.

3) Report

Preview allows displaying measured data, then print out. Select data to print out.

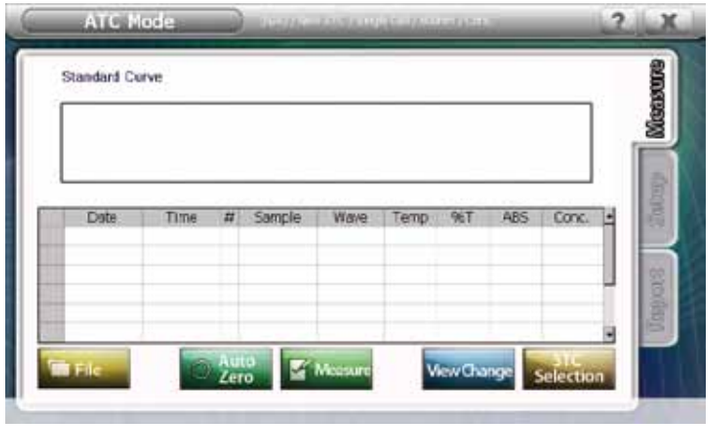
Name	Description	Details
Report Option	Select contents to print out.	Print out name, device information, STC chart, STC information, STC data, information, and data separately.
Print	Print out.	

Name	Description
Device Info	Check information of equipment and usage time of D2 & W Lamp.
ATC Info.	Check ATC Setting
ATC Data	Check ATC Data

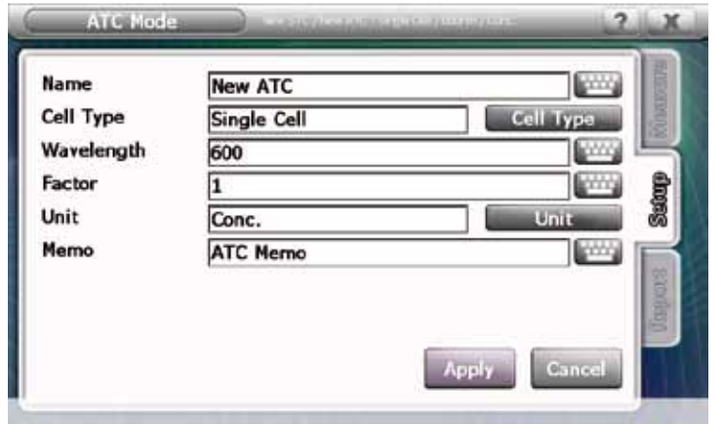
4) ATC "Single Wave Mode" Guide line (Simple absorbance measurement mode)

1. Touch ATC-Single wave in the main mode.

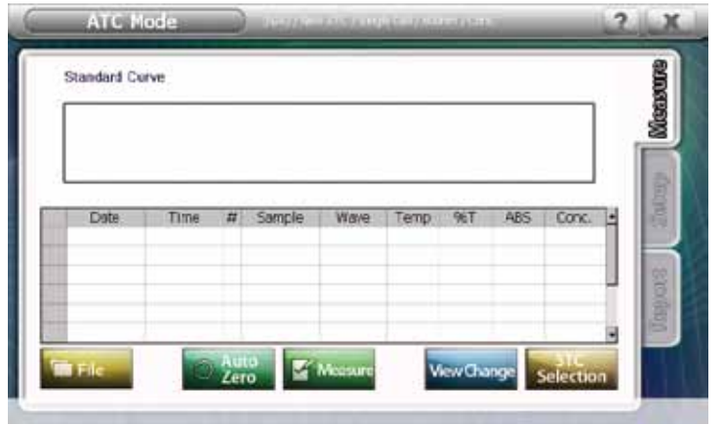
2. Move to the option tap set up factors.



3. After select name, type of cell, wavelength, factor, unit, and memo to input, touch Apply to process.



4. Automatically Move to the measure tap.



5. Put a blank sample into blank cell holder as set up. Process Auto Zero to operate.

6. After completing auto zero, put samples into cell holders; touch Measure to process.

7. After putting samples into cell holders, touch Measure to measure to process other samples

8. Table shows measured data. Graph shows standard curve.

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Part II. OPTIZEN POP Usage
2-1. ATC Mode (Single Wave Mode)

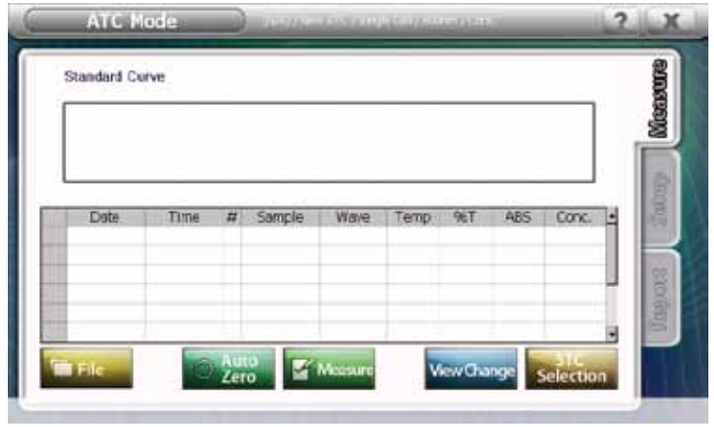
9. Move to the report tap, print out or check measured data as a report.

10. Touch the Report Option, and select contents to print out. Touch Apply to process.

5) ATC "Single Wave Mode" Guide line (Standard curve mode)

1. Touch ATC-Single wave mode in the main mode.

2. Touch STC Selection to select standard curve.



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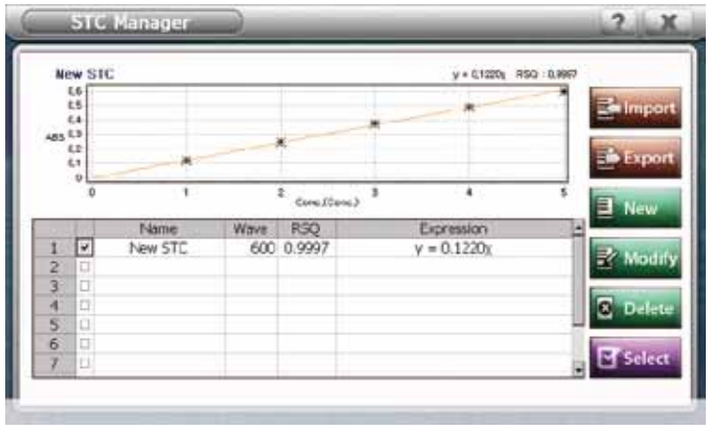
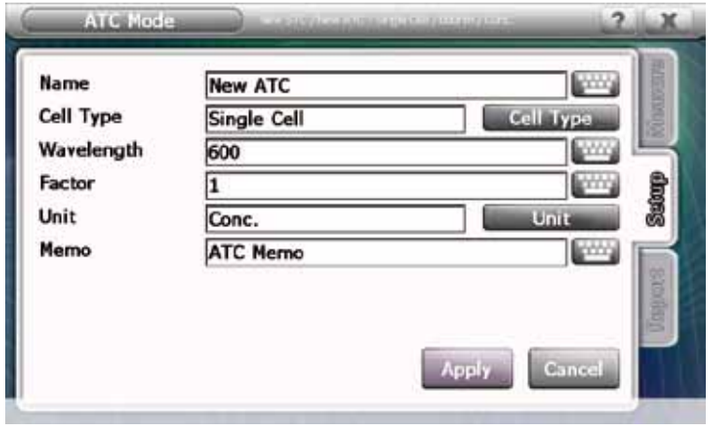
Part II. OPTIZEN POP Usage 2-1. ATC Mode (Single Wave Mode)

3. Select a standard curve to apply, touch Select standard curve to apply ATC mode.



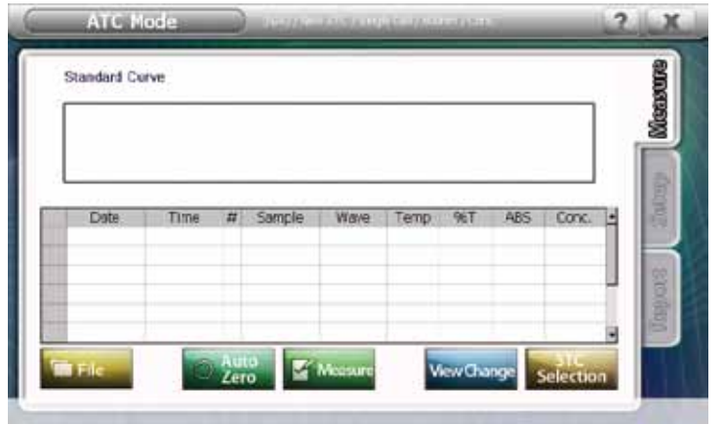
Touch New to draw apply new standard curve or touch Modify to modify existing standard curve, then move to STC mode to create and apply. (Refer to 3. STC mode)
Check the desired STC and touch Select . Then it will be applied to ATC mode automatically.

4. Setup tap leads to set functions & factors for measuring.



Wavelength & unit are applied as setup by user to standard curve mode.
Input name, type of cell, STC type, number of times & memo. Touch Apply to process.

5. Move to the measure tap automatically.



6. Put a blank sample to the blank cell holder as set up, process Auto Zero to operate.

7. After completing auto zero, put samples to cell holders. Touch Measure to measure.

8. Measure other samples, put samples into cell holders. Touch Measure to measure.

9. Check measured data as a table form.

10. Check measured data as report form or print out, go to the report tap.

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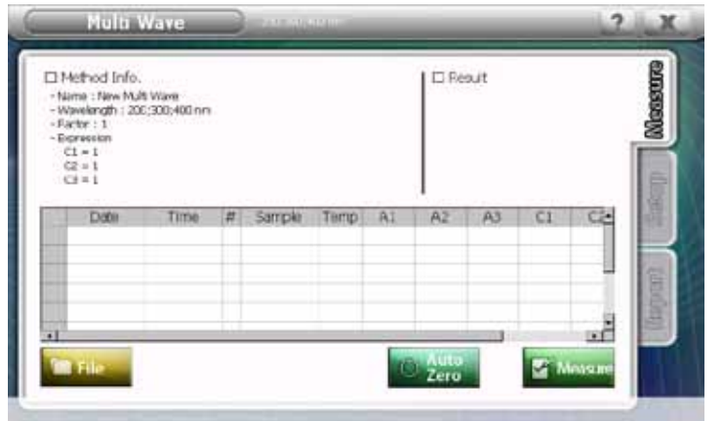
11. Touch [Report Option], and select contents to print out. Touch [Apply] to print out.

2-2. ATC Mode (Multi Wave Mode)

1) Measure

This mode is to check absorbance from multiple wavelengths.
It also provides simple calculation methods.



Name	Description	Details
Date	Date	
Time	Time	
#	Cell No. or Cell type	
Sample	Name of sample	
Temp	Temperature of Cell Box during measurement	
A1, A2	Absorbance	A1 : Absorbance value of the first wavelength, A2 : Absorbance value of the second wavelength ...
C1, C2	Concentration	C1 : Calculated result of the first formula, C2 : Calculated result of the second formula ...

• Input name of sample

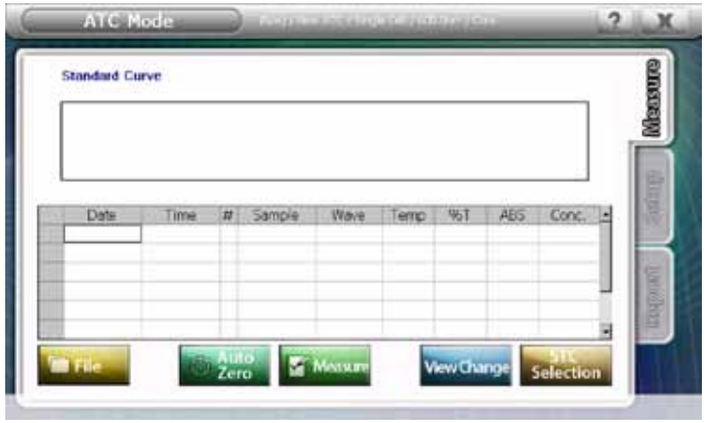
: Input name of sample by double clicking box and opening touch keyboard

Name	Description
File	Open data.
Auto Zero	Measure blank sample as auto zero.
Measure	Input sample to measure.

• Open/save file

Open File

1. Touch File.



2. Select the storage device Data Favorite USB to open the file from.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click the file to open. Check the file name at Name .

5. Touch Load .

6. Touch Delete to eliminate the file.

Save file

1. Touch File .

2. Select the storage device Data Favorite USB to save the file to.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click Name to input file name. Or select the file to be overwrited. Check the file name at Name .

5. Check at .CSV to save as excel form.

6. Touch Save to store.

7. Touch Delete to eliminate the file.

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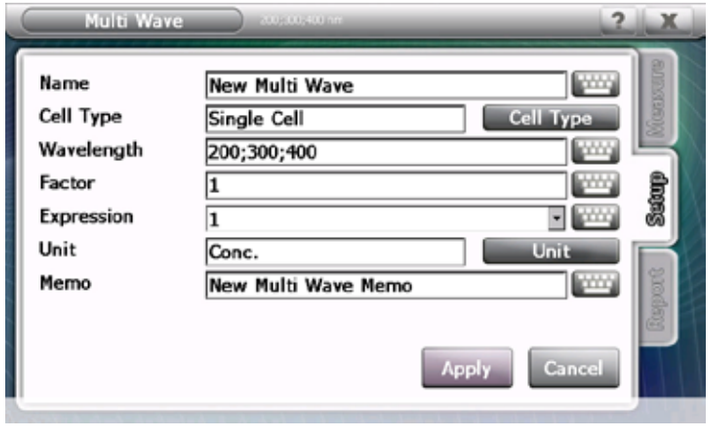
2) Setup

Measuring condition

This step allows setting factors to be applied for measurement.

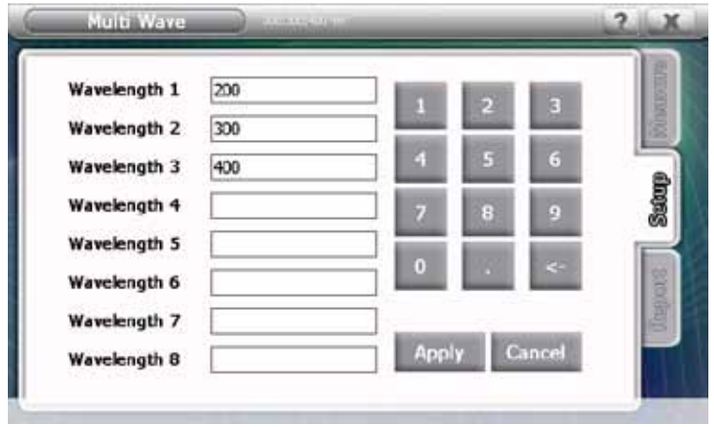
Set up file name, cell type, wavelength, factor, unit and memo.



Name	Description	Details
Name	After touch the keyboard button, input file name with keyboard.	
Cell Type	After select type of cell. Touch [Apply] to set up options.	Default cell type is single cell. (Ref : 6. Cell type - 71page)
Wavelength	Input wavelength range you want to use with keyboard.	Default wavelength is 600nm, and default wavelength range is 190~1100nm.
Factor	Input diluting number and / or other factors, value of concentration.	
Expression	As the pre-set expression(C1~C3), it will automatically calculate the result with measured value(A1~A8).	Maximum three expressions can be set.
Unit	Input or select unit. Touch unit to select unit for measurement.	
Memo	Touch keyboard box to write brief information on measurement.	

Input wavelengths

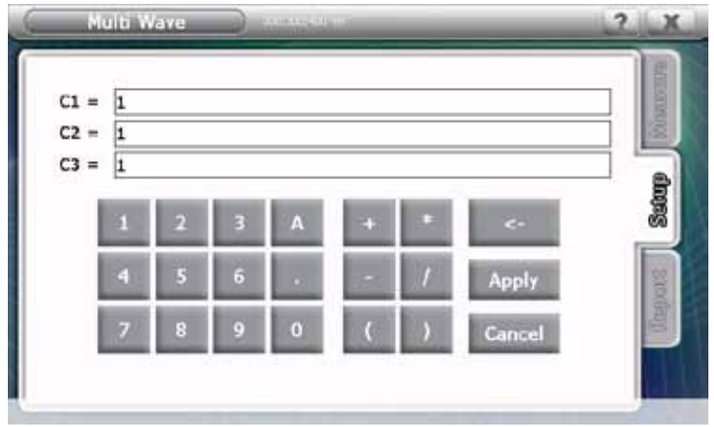
1. Touch  beside wavelengths.



2. Input wavelengths using number pad on the screen.
3. Input wavelengths between 190nm and 1100nm. It is possible to input to one decimal place and maximum 8 wavelengths.
4. Touch Apply .

Input expressions

1. Touch  besides expression.



2. Input expressions using number keypad on the screen. A means measured absorbance values. A1 is the absorbance value of the first wavelength, and A2 is that of the second wavelength.

3. Possible to input +,-,*,/,(,) to expressions.

4. Touch Apply .

Modify Unit

9 conventional units are ready to use as main units.
If there are other units to be used, modification is available. Modification of unit

1. Touch Unit .

2. If you need to change unit, touch .

3. Select unit number to change, then double click allows to keyboard box to appear.

4. Input unit with keyboard box then enter.

5. Touch Apply to apply.

3) Report

Preview allows displaying measured data, then print out. Select data to print out.

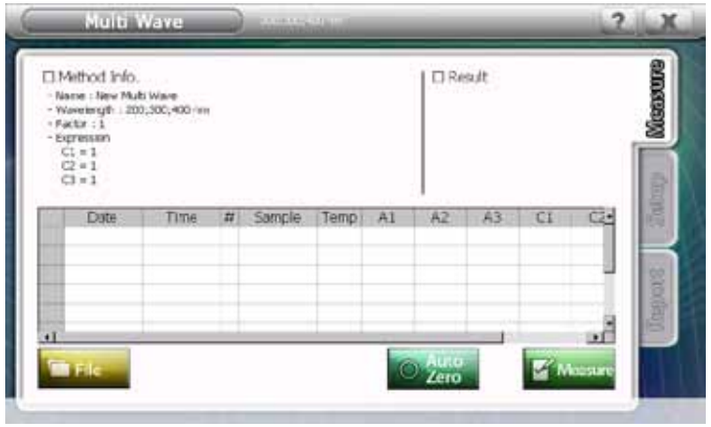
Name	Description	Details
Report Option	Select contents to print out.	Print out name, device information, Multi Wave information, and Multi Wave data separately
Print	Print out.	

Name	Description
Device Info	Check information of equipment and usage time of D2 & W Lamp.
Multi Wave Info.	Check Multi Wave Setting
Multi Wave Data	Check Multi Wave Data

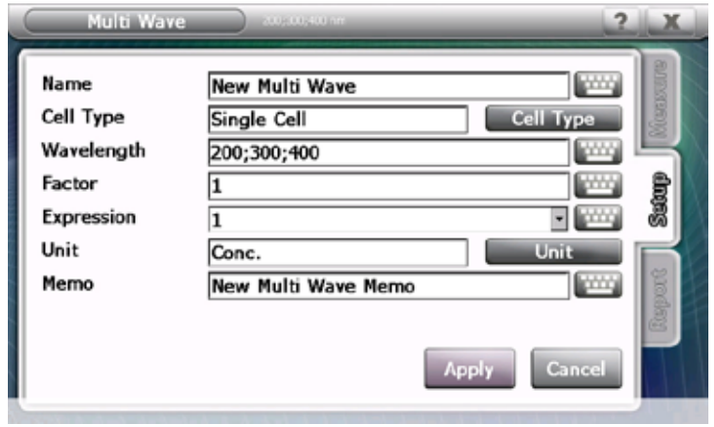
4) ATC (Multi Wave Mode) Guide line (Simple absorbance measurement mode)

1. Touch ATC mode - Multi Wave Mode in the main mode.

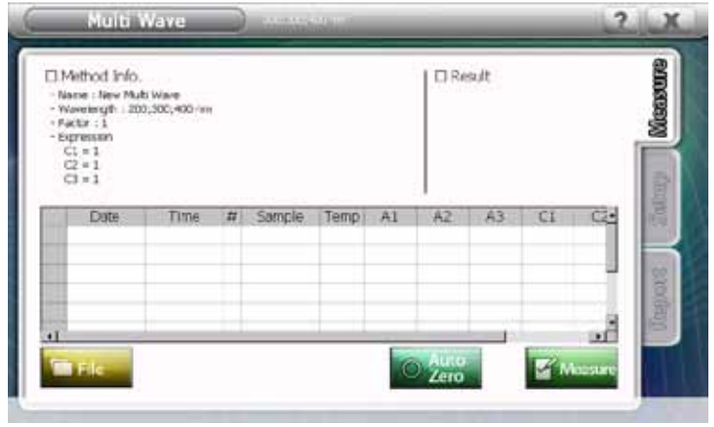
2. Move to the option tap set up factors.



3. After select name, type of cell, wavelength, factor, expression, unit, and memo to input, touch Apply to process.



4. Automatically Move to the measure tap.



5. Put a blank sample into blank cell holder as set up. Process Auto Zero to operate.

6. After completing auto zero, put samples into cell holders; touch Measure to process.

7. After putting samples into cell holders, touch Measure to measure to process other samples

8. Table shows measured data. Graph shows standard curve.

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Part II. OPTIZEN POP Usage
2-2. ATC Mode (Multi Wave Mode)

9. Move to the report tap, print out or check measured data as a report.

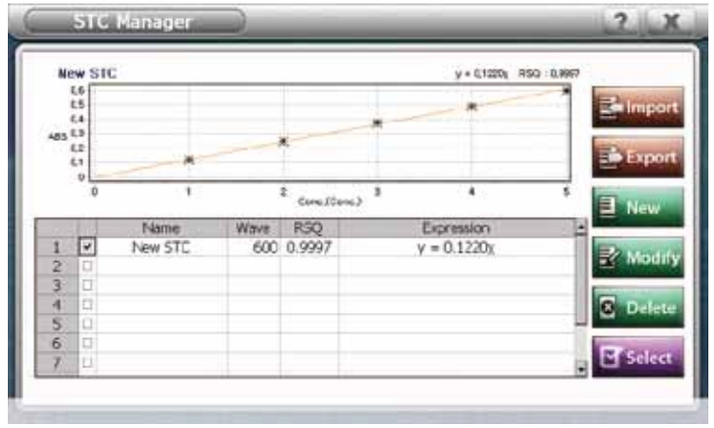
10. Touch the Report Option, and select contents to print out. Touch Apply to process.

3. STC Mode

STC mode leads to draw standard curve with known concentration.
Selected standard curve is applied to ATC mode to get the value of concentration.

1) STC Manager Mode

As managing system of STC mode, standard curve to be selected, modified, deleted,
Or import or export other STC file

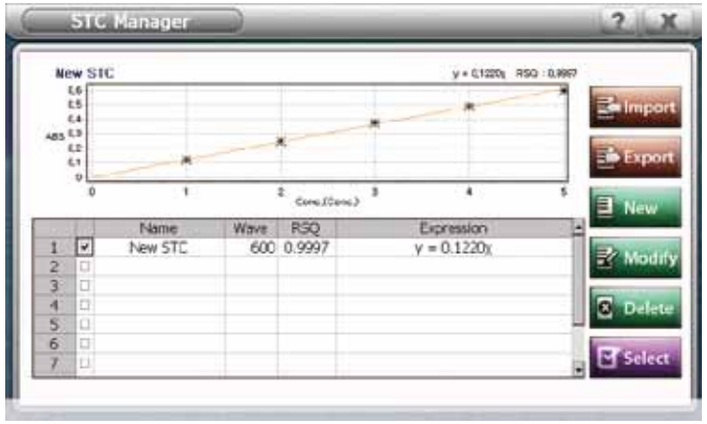


Mark on an empty box to confirm standard curve (Graph, RSQ values, Formula)
Touch Export, Modify, Delete, and Select when connecting ATC mode

Name	Description
Import	Open STC file from outside into STC manager list
Export	Move STC file from STC manager list to outside data storage
New	Create standard curve
Modify	Confirm or modify saved standard curve.
Delete	Delete marked standard curve among saved standard curve.
Close	Finish the STC manager.
Select	Select a standard curve that apply into ATC

Import

1. Touch Import .



2. Select the storage device Data Favorite USB to open the file from.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

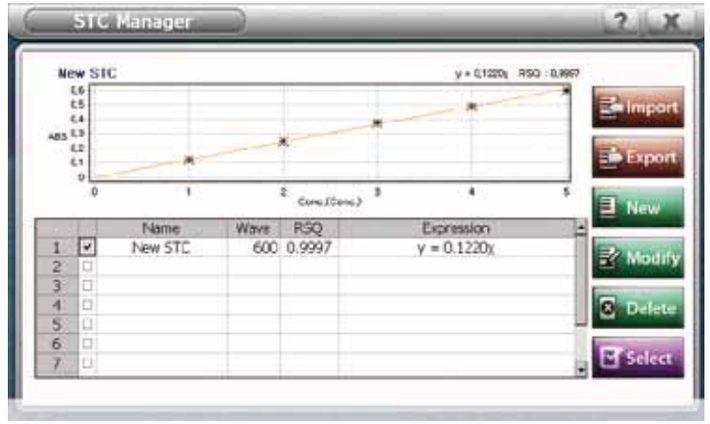
4. Double click the file to open. Check the file name at Name .

5. Touch Import .

6. Touch Delete to eliminate the file.

Export

1. Mark a STC file, and then touch Export .



2. Select the storage device Data Favorite USB to export the file to.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click Name to input file name.

5. Touch Export .

6. Touch Delete to eliminate the file.

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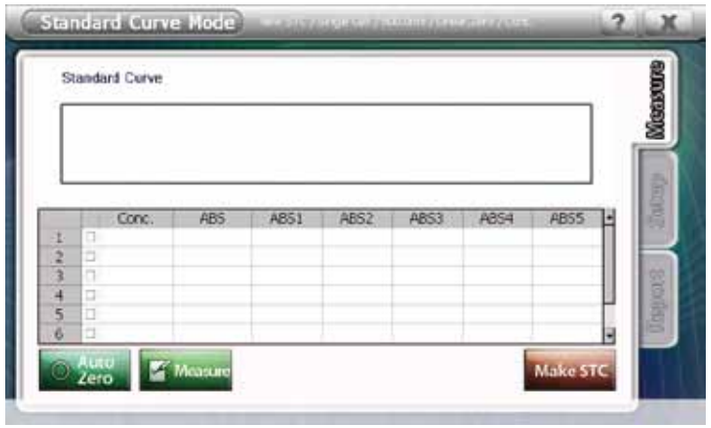
2) Measure

Input concentration value of conventional sample to Conc. orderly, create standard curve with measuring conventional samples.



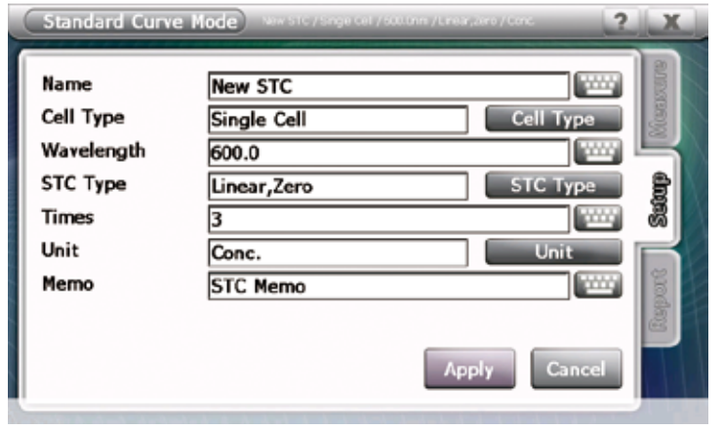
Double click keyboard box. Input value of concentration with keyboard.

Name	Description	Details
Auto Zero	Blank sample as a baseline shall be measured.	Maximum 7 samples can be measured at once
Measure	Put samples to measure.	
Make STC	Measure all to create a standard curve.	

3) Setup

Set factors and functions.

Set up name, Cell type, wavelength, STC type, times, unit and memo.



Name	Description	Details
Name	Touch keyboard box to input file name.	Find it at the STC manager list.
Cell type	Conventional cell type is single cell mode. Select cell type, touch Apply to set up options.	Default cell type is single cell. (Ref : 6. Cell type - 71page)
Wavelength	Input wavelength range you want to use with keyboard.	Default wavelength is 600nm, and default wavelength range is 190~1100nm.
STC type	After select form of standard curve, touch Apply to process.	Select straight line, and curve.
Times	Input the number of measurement of each cell.	After touch keyboard box, input data with keyboard. You are able to input 5 times.
Unit	Input or select unit.	
Memo	Touch keyboard box to input memo	

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Part II. OPTIZEN POP Usage 3. STC Mode

Modify unit

9 conventional units are ready to use as main units.

If there are other units to be used, modification is available.

Modification of unit

1. Touch the Unit .

2. If you need to change unit, touch .

3. Select unit number to change, then double click allows to keyboard box to appear.

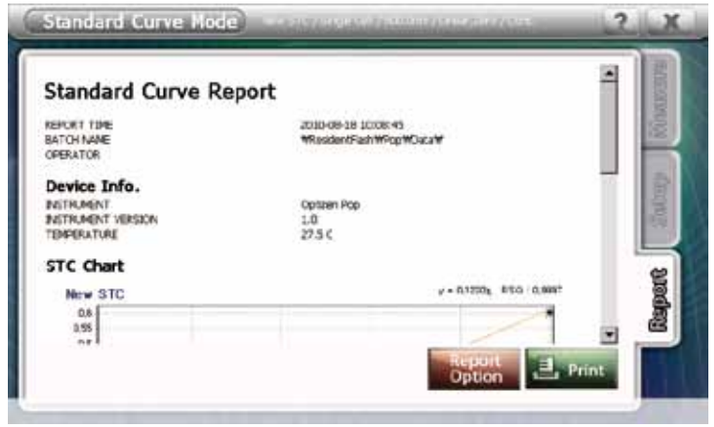
4. Input unit with keyboard box then enter.

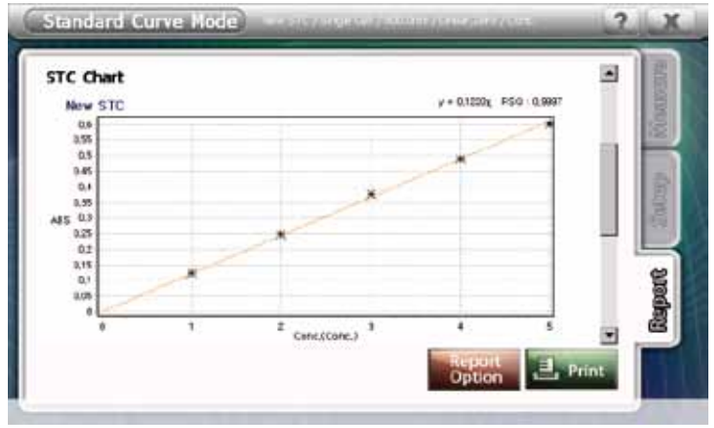
5. Touch Apply to apply.

4) Report

Print out measured data with the preview.

Print out selected data.





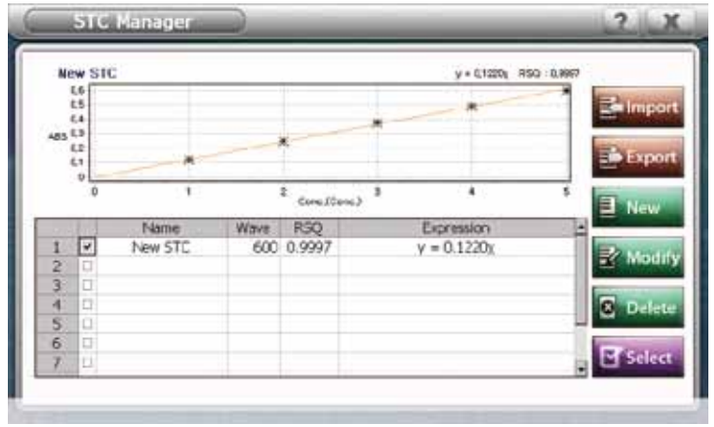
Name	Description
Report Option	Select contents to print out.
Print	Print out

Name	Description
Device Info	Check information of equipment and usage hour of D2 & W Lamp
STC Chart	Check STC graph
STC Info.	Check STC setting
STC Data	Check STC Data

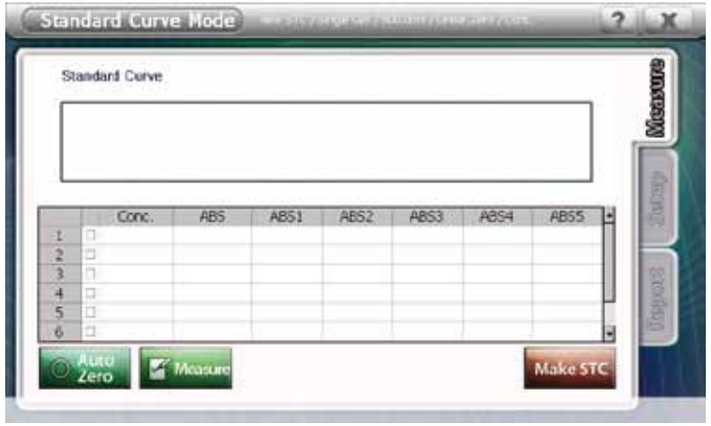
5) STC guide line (Standard curve)

1. Touch STC mode at the main mode

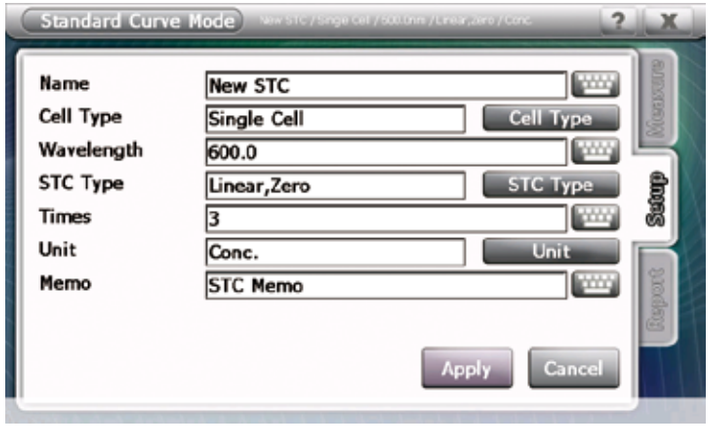
2. Touch New at STC manager to draw up new standard curve.
   To modify standard curve, touch Modify. Move to STC Mode.



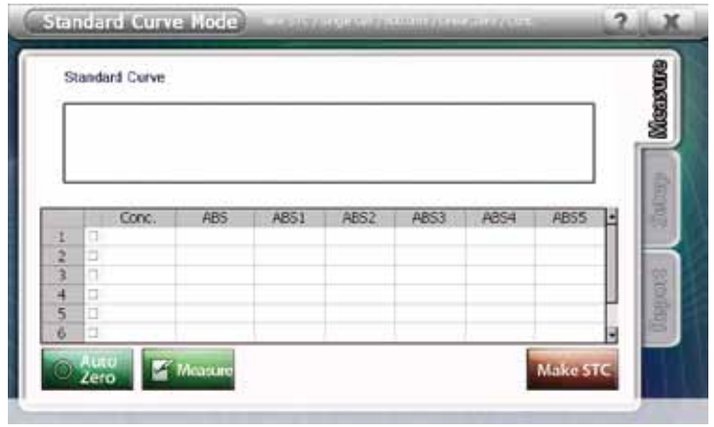
3. Move to the setup tap to set factors.



4. Select name, type of cell, wavelength, factor, unit, and memo to input, and then touch Apply to process.



5. Move to the measure tap automatically.



6. Double click square box to open touch keyboard, use keyboard to input the concentration of sample

7. Put a blank sample in to blank cell holder. Process Auto Zero to operate.

8. After complete auto zero, put samples to cells. Then, touch Measure to measure.

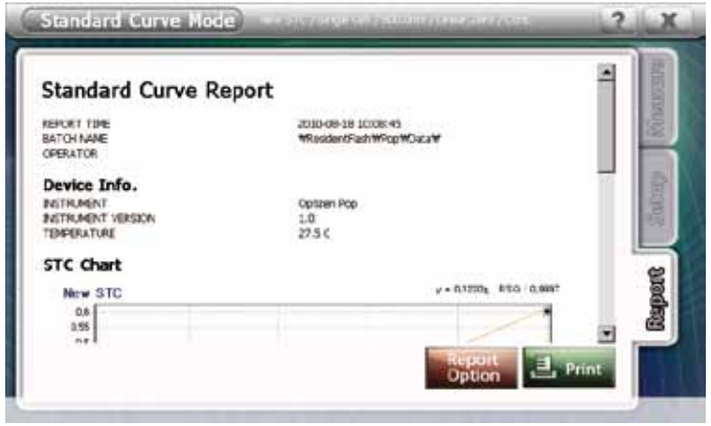
9. Put another samples to cells, then touch Measure to measure.

10. Check measured data as table form.

11. Select the Make STC, and then draw a STC type of standard curve. After that, confirm a formula of standard curve and RSQ.

12. Each row, there is a mark box to select data. Check a mark box to select data or undo not to select data.

13. If you want to check measured data as report form or print out, move to the report tap.



14. Touch 

, and select contents, then touch 

to process.

15. Confirm contents then touch 

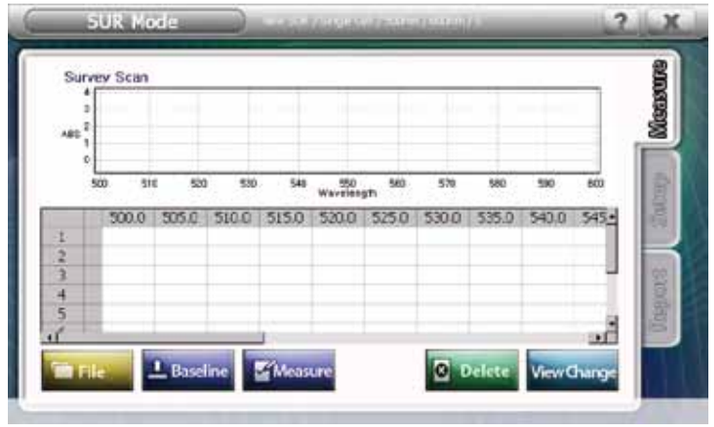
to print out.

4. SUR Mode

This leads to make graph at the specific wavelength ranges.
At each selected wavelength range, transmittance and absorption are valued.

1) Measure

Spectrums of selected cells are valued within the intervals of selected wavelength points.

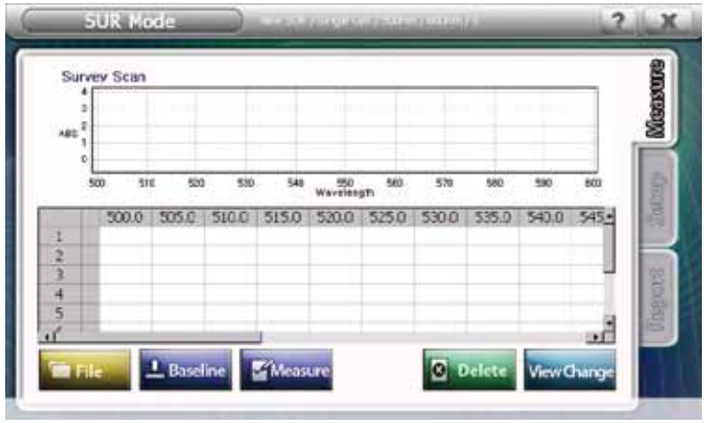


Name	Description
File	Open the saved file, or Save the measured data.
Baseline	Collect baseline with the reference sample.
Measure	Draw spectrums.
Delete	Delete the selected data after measuring.
View Change	Convert views to graph+table, graph only or table only.

• **Open/save file**

Open File

1. Touch 



2. Select the storage device 

to open the file from.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click the file to open. Check the file name at **Name**  .

5. Touch 

.

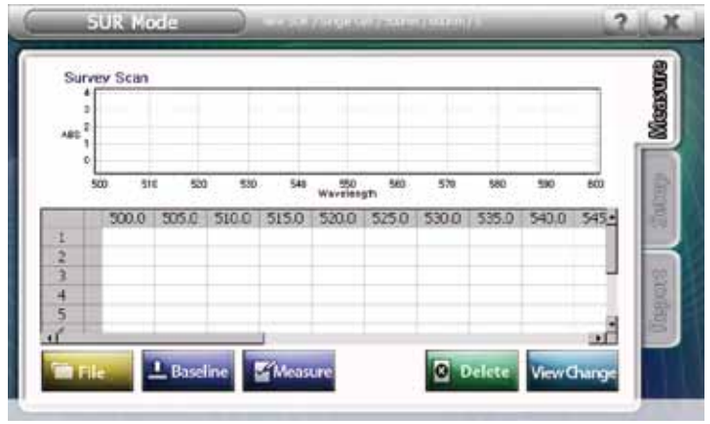
6. Touch 

to eliminate the file.

Save file

1. Touch 

.



2. Select the storage device 

to save the file to.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click **Name**  to input file name. Or select the file to be overwrited. Check the file name at **Name**  .

5. Check at 

to save as excel form.

6. Touch 

.

7. Touch 

to eliminate the file.

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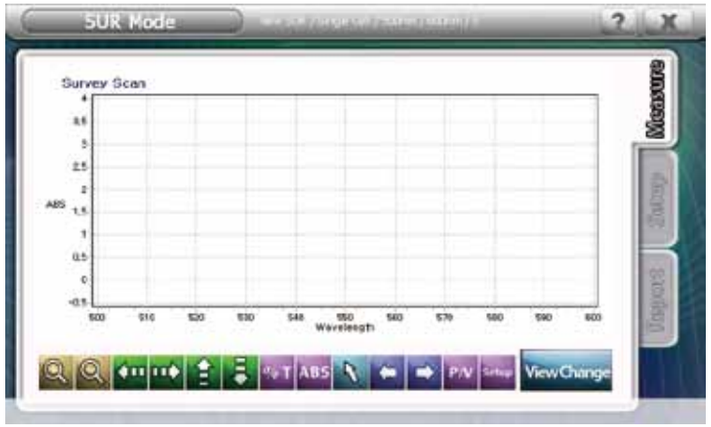
View Change

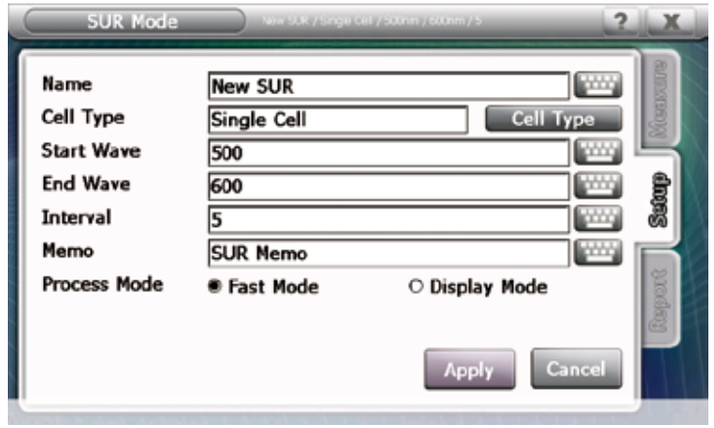
As you change to graph only, functions appear such as zoom in, zoom out, move graph, %T/ABS selection, peak/valley detection and so on.



No.	Name	Description
	Zoom in	Enlarge chart.
	Zoom out	Minimize chart (Return to original size)
	left	Move chart to the left
	right	Move chart to the right.
	up	Move chart to the upper direction.
	down	Move chart to the bottom
%T	**%T**	Change data format to transmittance.
ABS	**ABS**	Change data format to absorbance.
	Cursor	When Peak/Valley appears, click cursor to check Absorbance(Transmittance) and wavelength value
	Cursor to left	Move cursor to the left.
	Cursor to right	Move cursor to the right.
P/V	**Peak/Valley**	Show Peak & Valley points of graph.
Setup	**Peak/Valley Setup**	Change Peak/Valley Setting
ViewChange	**View Change**	Check data in three types (graph+data, graph, data)

2) Setup

Set up measuring conditions. Set up file name, cell type, start wave, end wave, Interval, memo and process Mode.



Name	Description	Details
Name	Touch the name button to input file name.	
Cell Type	Select cell type to use and touch Apply .	Default cell type is single cell. (Ref : 6. Cell type - 71page)
Start Wave	Input the start point of wavelength using touch keypad.	The default value is 600nm and you can input wavelengths from 190nm to 1100nm.
End Wave	Input the end point of wavelength using touch keypad.	The default value is 600nm and you can input wavelengths from 190nm to 1100nm, But it must be higher than the start point of wavelength.
Interval	Set the scanning steps using touch keypad.	

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Part II. OPTIZEN POP Usage 4. SUR Mode

Memo	Touch the keyboard box to write brief information of measurement.	

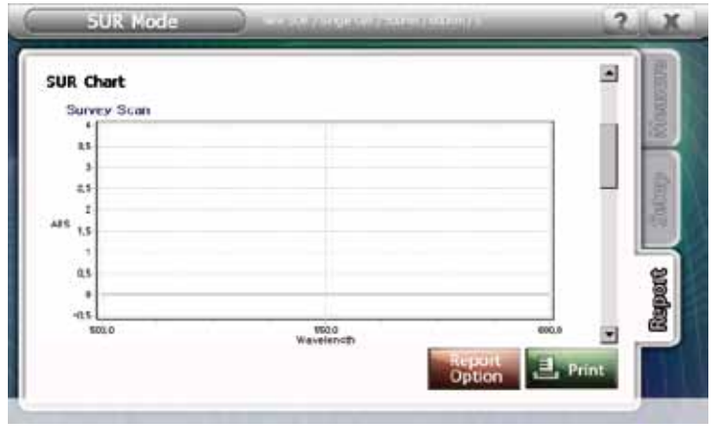
• Process Mode

Fast Mode - Measure without showing process Bar and show all data at once. It is unable to cancel or check the progress during this measurement.

Display Mode - Users can check the progress from the process bar. Click cancel button to stop the measurement.

3) Report

Print out the measured data after checking with preview.
Select the items that you want to print.



Name	Description
Report Option	Select items that you want to print out.
Print	Print out

Name	Description
Device Info	Check information of equipment and hours left in D2 & W Lamp.
SUR Chart	Check SUR graph
SUR Info.	Check SUR Setup information.
SUR Data	Check SUR Data

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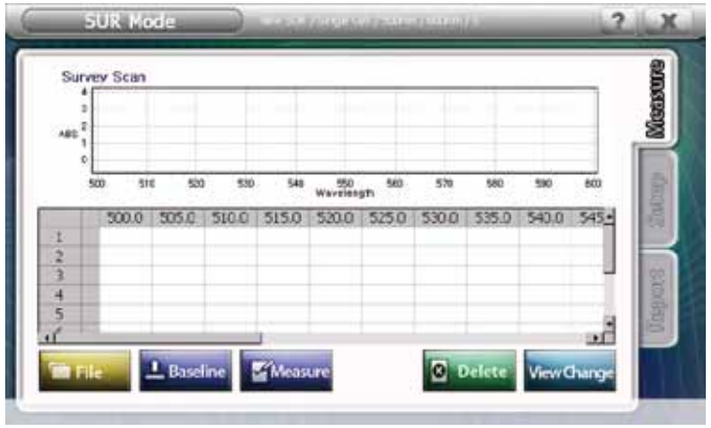
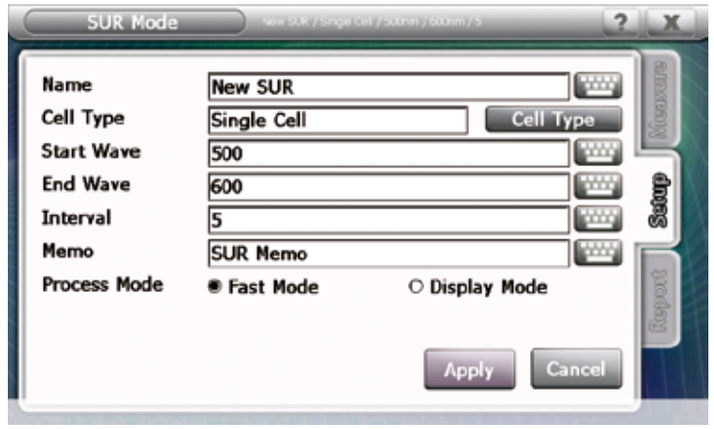
4) SUR guide line

1. Touch SUR mode at the main mode.

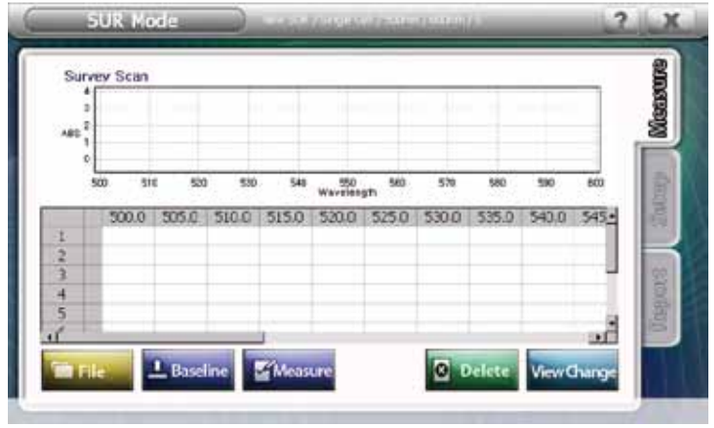
2. Touch set up tap to set the measuring conditions.



3. Input or select Name, Cell Type, Start Wave, End Wave, Interval, and memo, touch Apply .



4. Move to Measure mode automatically.



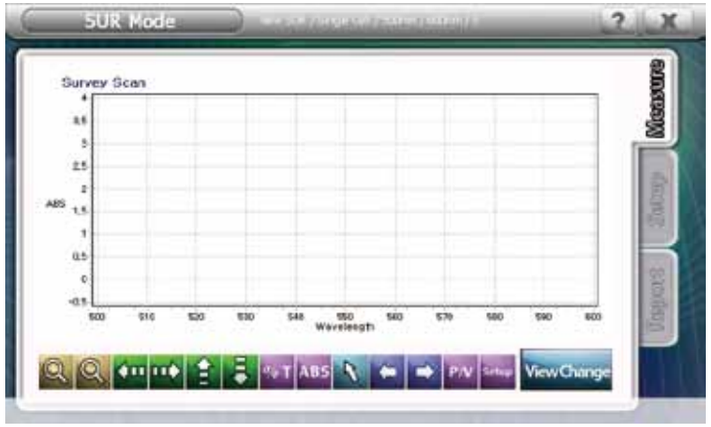
5. Input the reference sample to cell no. B, and touch Baseline .

6. After collecting baseline, input samples to each cell holders and touch Measure to draw spectrums.

7. If you have more samples, input samples to each cell holders and touch Measure to draw spectrums.

8. See the measured data as graph and table forms.

9. Touch View Change to convert views to graph+table, graph only, table only.



10. To check or print out the measured data, touch report tap.

11. Touch Report Option and select items to print. Then touch Apply .

12. After checking preview, touch Print .

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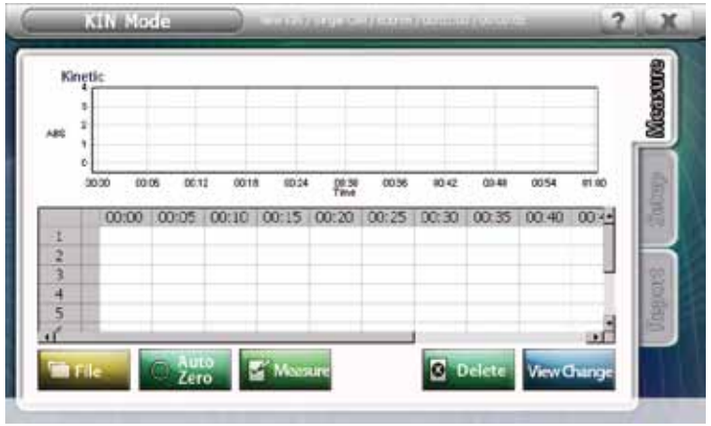
Part II. OPTIZEN POP Usage 4. SUR Mode

5. KIN Mode

Kinetic mode allows getting variable with time differences.

1) Measure

Draw time course scanning graph.



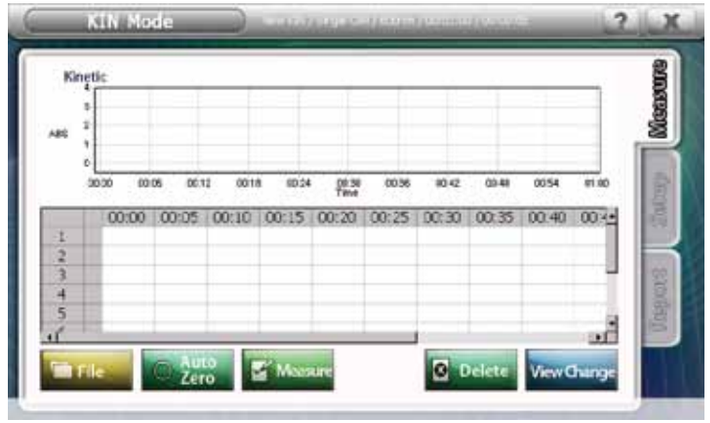
Name	Description
File	Open the saved file, or Save the measured data.
Auto Zero	Make autozero with the reference sample.
Measure	Draw time course scanning graphs of samples.
Delete	Delete the selected data after measuring.
View Change	Convert views to graph+table, graph only or table only.

• Open/save file

Open File

1. Touch 

.



2. Select the storage device 

to open the file from.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click the file to open. Check the file name at 

.

5. Touch 

.

6. Touch 

to eliminate the file.

Save file

1. Touch 

.

2. Select the storage device 

to save the file to.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

3. Select the folder.

4. Double click **Name**  to input file name. Or select the file to be overwrited. Check the file name at **Name**  .

5. Check at 

to save as excel form.

6. Touch 

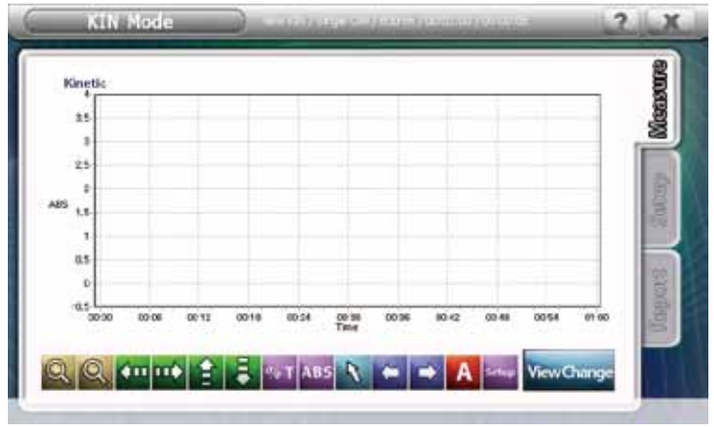
.

7. Touch 

to eliminate the file.

View Change

As you change to graph only, you can use functions such as zoom in, zoom out, move graph, %T/ABS selection, Activity detection and so on.



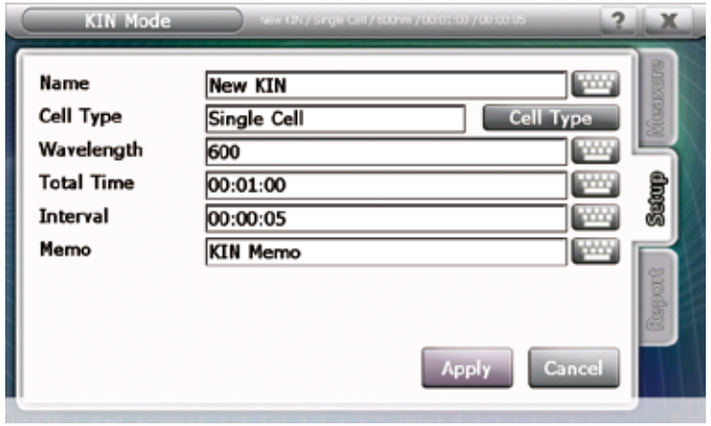
No.	Name	Description
	**Zoom in**	Enlarge chart.
	**Zoom out**	Minimize chart (Return to original size)
	**left**	Move chart to the left
	**right**	Move chart to the right.
	**up**	Move chart to the upper direction.
	**down**	Move chart to the bottom
	**%T**	Change data format to transmittance.
	**ABS**	Change data format to absorbance.
	**Cursor**	When Peak/Valley appears, click cursor to check Absorbance(Transmittance) and wavelength value
	**Cursor to left**	Move cursor to the left.
	**Cursor to right**	Move cursor to the right.
	**Activity**	Shows activity of measured data by each time section.

	Activity Setup	Modify activity setting
View Change	**View Change**	Check data in three types (graph+data, graph, data)

2) Setup

Set up measuring conditions.

Set up file name, cell type, wavelength, total time, interval and memo.

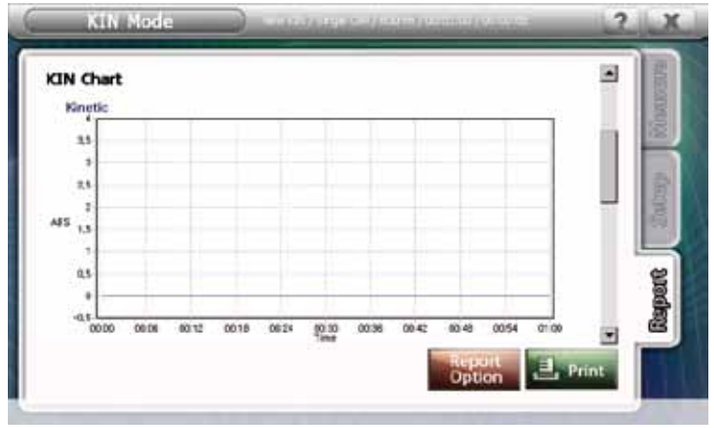


Name	Description	Details
Name	Touch the name button to input file name using touch keypad.	
Cell Type	Select cell type to use and touch Apply .	Default cell type is single cell. (Ref : 6. Cell type - 71page)
Wavelength	Input wavelength using touch keypad.	The default value is 600nm and you can input wavelengths from 190nm to 1100nm.
Total Time	Input total time using touch keypad.	
Interval	Input time interval using touch keypad.	
Memo	Input other information with memo taps if needed.	

3) Report

Print out the measured data after checking with preview.

Select the items that you want to print.



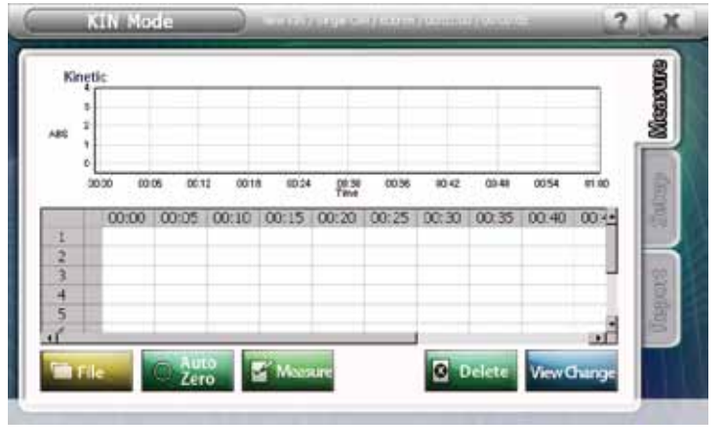
Name	Description
Report Option	Select the items that you want to print out.
Print	Print out

Name	Description
Device Info	Check information of equipment, usage time of D2 & W Lamp
KIN Chart	Check KIN graph
KIN Info.	Check KIN setting
KIN Data	Check KIN Data

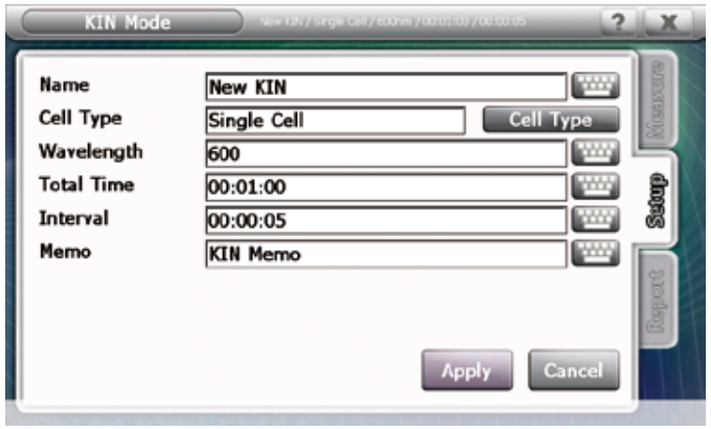
4) KIN Guide line

1. Touch KIN mode at the main mode.

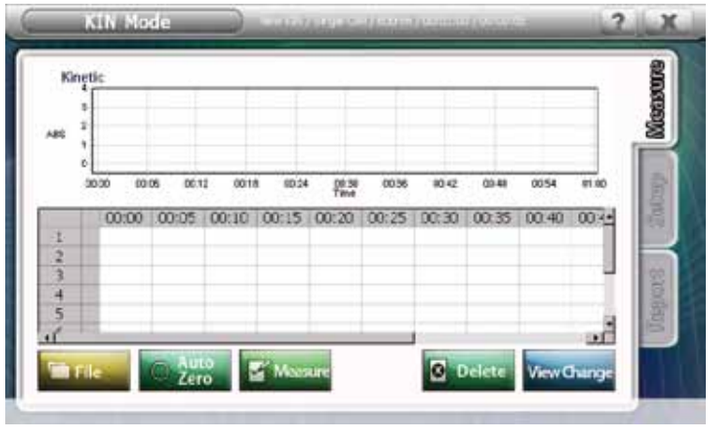
2.Touch set up tap to set measuring conditions.



3. Input or select Name, Cell Type, Wavelength, Total time, interval, and memo, touch Apply .



4. Move to Measure mode automatically.



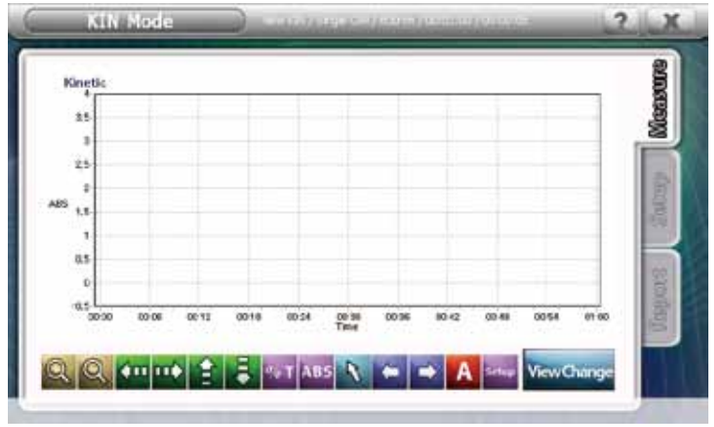
5. Input the reference sample to cell no. B, and touch Auto Zero .

6. After making auto zero, input samples to each cell holders and touch Measure.

7. If you have more samples, input samples to each cell holders and touch Measure .

8. See the measured data as graph and table forms.

9. Touch View Change to convert views to graph+table, graph only, table only.



10. To check or print out the measured data, touch report tap.

11. Touch Report Option and select items to print. Then touch Apply.

12. After checking preview, touch Print.

6. Cell type

1) Nano Liter Cell

Nanoliter cell to measure extremely small amounts of sample, only 3ul ~ 5ul samples are needed.

1. Select Nano Liter Cell.

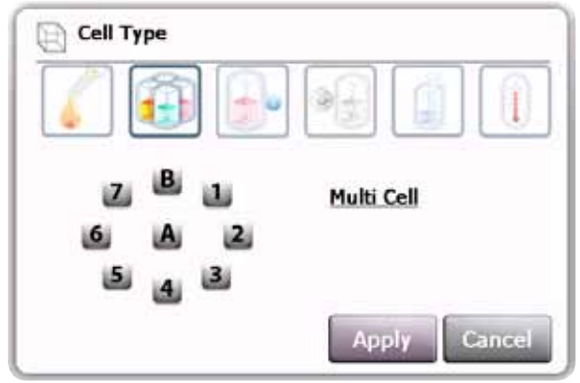
2. Select the proper Path Length. (0.2mm : 0.7~3ul(Optional), 1.0mm : 3~5ul)

3. Touch Apply.

2) Multi Cell

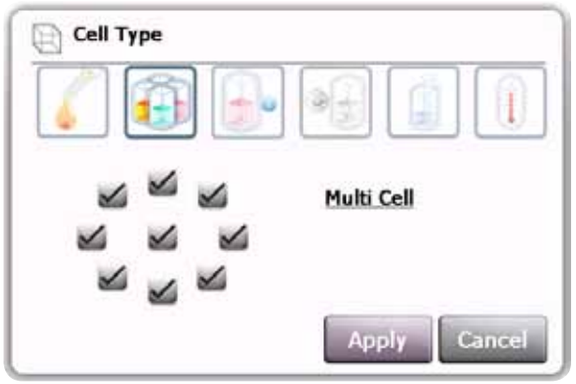
Rotary type Multi Cell Holder to measure numbers of samples.

1. Select Multi Cell.



2. Check cell number to be measured.

3. Check [A] to use all the 8 cells.

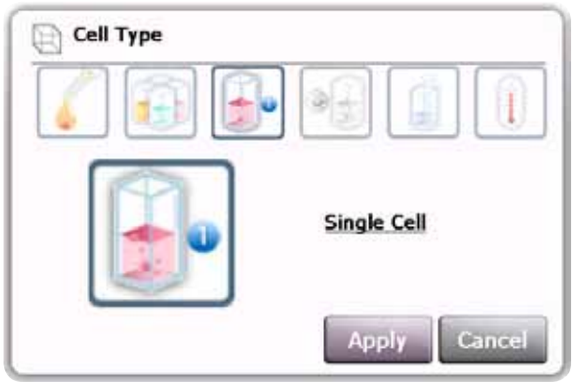


4. Touch Apply.

3) Single Cell

Mode for Single Cell, Round Cell, Film Cell and Long Path Cell.

1. Select Single Cell.

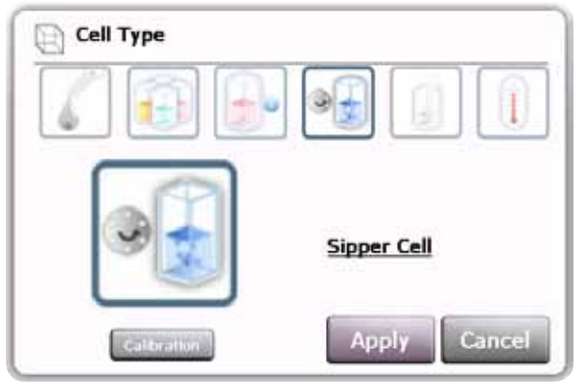


2. Touch Apply.

4) Sipper Cell

Mode for Sipper Cell(Flow cell). Aspiration and measurement are regulated by sipper module.

1. Select Sipper Cell.



3. Touch Apply.

4. Proceed to measure mode after setup

Cautions : Aspiration
At the aspiration step, you can see twice aspirations upon clicking ASP button on the Sipper or touching .
The first aspiration is the sample aspiration as the volume set at the Calibration – Sample mode.
And the second aspiration is the air aspiration for the feeding - moving samples to the measuring point of flow through cell with air.
Please make it sure to aspirate the sample at the first aspiration only and remove the sample tube at the second aspiration for feeding.

• **Measuring with Optizen Sipper**

Manual Mode : Measure after aspirating the sample using ASP button on the Sipper or .

a. 

Do not check anything.

b. Aspirate the blank sample using ASP button on the Sipper or .

c. Touch Auto zero / Baseline.

d. Aspirate the samples using ASP button on the Sipper or .

e. Touch measure.

Aspirate before Measure : As touching Measure, it will aspirate the sample automatically and measure.

a. 

Check Aspirate before Measure.

b. Aspirate the blank sample using ASP button on the Sipper or .

c. Touch Auto zero / Baseline.

d. Prepare the sample tubes.

e. Upon touching Measure button, it will aspirate the sample automatically and after aspiration, it will measure.

f. Repeat item.e as the sample numbers.

Aspirate after Measure : After measuring the sample, and then aspirate the next sample automatically.

a. 

Check Aspirate after Measure.

b. Aspirate the blank sample using ASP button on the Sipper or .

c. Touch Auto zero / Baseline.

d. Prepare the sample tubes.

e. Upon touching Measure button, it will measure the sample, and them aspirate the next sample automatically.

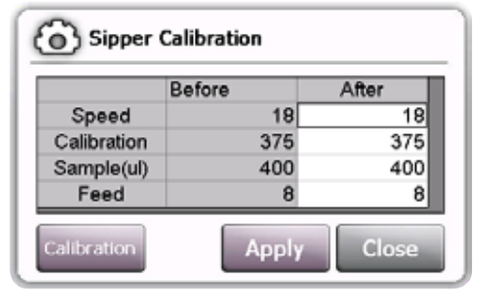
f. Repeat item.e as the sample numbers.

• **Calibration**

Touch [Calibration] to set the conditions of the Sipper.

Check the connection of the Sipper. If it is OK, it will show below message. Then touch [OK] to proceed to calibration mode.

If it is not OK, it will show [Check Sipper Cable] message. Then check connection once again.



User can define every items on calibration window.

But it may cause malfunctions.

'Before' line shows current values, and 'After' line shows the values to be replaced.

To modify the calibration value, input the new values at the 'After' line windows, then touch [Apply]. You can see the changes at the 'Before' line.

Check and touch [Close].

Name	Description	Details
Speed	Aspiration speed.	You can select from 1 to 30. Set as the measuring conditions.
Calibration	Revolutions(rotating numbers) of the peristaltic pump per specific volumes.	You can select from 50 to 500. We recommend not to modify it as you choose but to use automatic calibration mode. The calibration values can be changed upon Speed, Tube size ans so on. If the real aspirated volume is different with the set volume, correct it at the automatic calibration mode.

Sample	The sample aspiration volume.	You can select from 200 to 5000. The unit is μℓ.
Feed	The air aspiration volume to move samples to the measuring point of flow through cell.	As it can be changed upon Tube length, check if the sample arrives at the measuring point before measuring.

- **Automatic Calibration (Aspiration volume calibration)**

[Calibration] button at this window is to calibrate the aspiration volume automatically.
As you touch [Calibration] button, CAL LED on the sipper will be turned on and sipper proceed to calibration waiting mode.

Usage

1. It is done by calculating revolutions(rotating numbers) of the peristaltic pump per specific sample volume(5 μℓ).
   Please prepare 5 μℓ of D.W. before calibration.
2. Touch [Calibration] button to proceed to calibration waiting mode.
3. Aspirate 5 μℓ of D.W. by pushing CAL button on the sipper.
   Please note to keep pushing the button until aspirating the whole sample.
   Caution : Pay attention that aspiration is not interrupted.
4. After the end of aspiration, stop pushing the CAL Button.
5. It will calculate the calibration value automatically at the S/W window.
   After checking, if the calibration procedures and the values are OK, touch [Apply]

5) Micro Volume Cell

Mode for Micro Volume Cell.

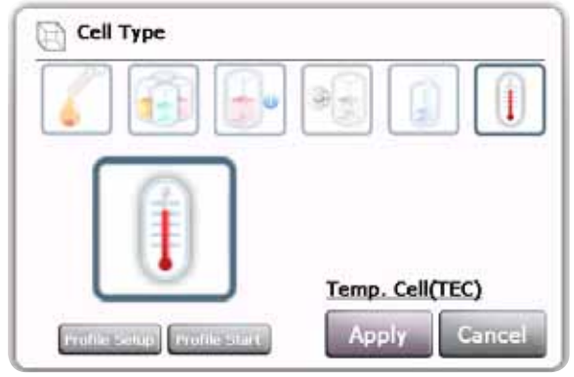
1. Select Micro Volume Cell.

2. Touch Apply.

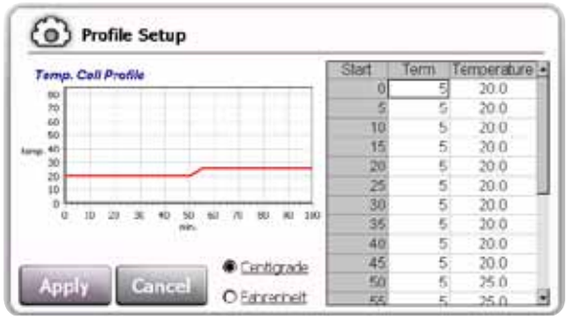
6) Temperature Cell

Mode for Temperature Cell Holder precisely regulated by TEC Control System (Peltier type) module. (5~85 μℓ)

1. Select Temp. Cell(TEC).



2. Touch Profile Setup to set the temperature control conditions.



3. Input Term(duration time) and Temperature.
Double click the intended window and input using keypad.

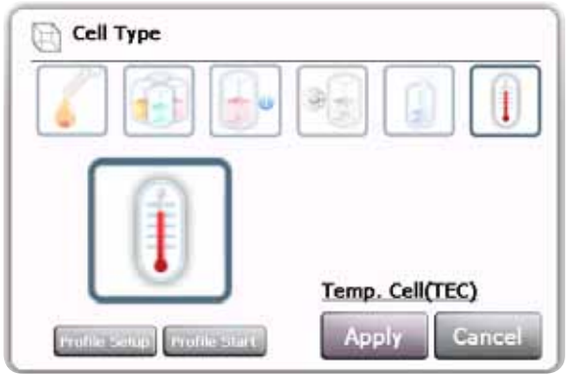
Ex) 0min~10min (duration : 10minutes) : 20℃
10min~60min (duration : 50minutes) : 40℃
60min~70min (duration : 10minutes) : 20℃

Start	End	Temperature
0	10	20
10	50	40
60	10	20

4. Graph shows temperature profile.

5. Centigrade and Fahrenheit convertible.
Temperature will be changed automatically upon your choice.

6. Touch Apply to end the setting.



7. Touch Profile Start to start temperature control.

8. Touch Apply .

9. TEC Control System shows temperature status.

7. Favorite

Open and modify [Favorite]

Search file: Touch [Favorite]. Search file at the saved file list.

Select a file : Select file as desired, touch Select to open the file.
If you want to delete the file, select the file from the list and touch .
* Deleted file from the list will be eliminated from the storage device, too. *

Hide file list : Touch [Favorite] again to hide the list.

8. POP Set

Manage application setting, device setting and calibration of OPTIZEN POP

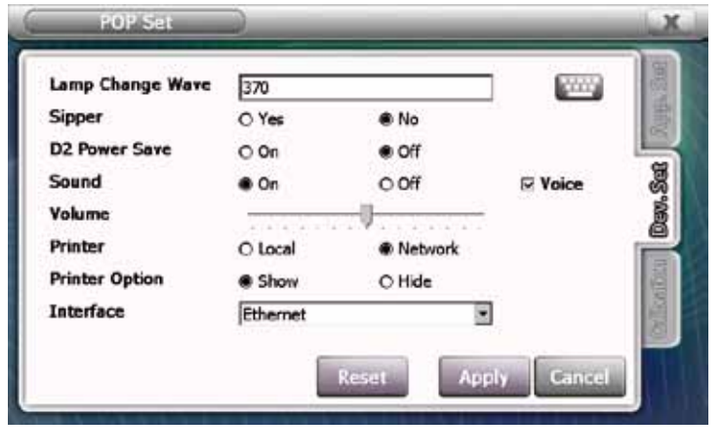
1) Application Set

Set up application.

Name	Description	Details
Initial Wave	Set initial wavelength	
Auto Zero	select auto zero working type	Auto[B] : POP will measure 'B' cell and set autozero automatically. You don't need to touch [autozero] before measuring. Manual : You have to touch [autozero] before measuring.
Language	Select language	
Favorite File List	Select display format of Favorite Files	
Shortcut	Make shortcut to .	Move to selected mode directly when you turn on the POP.
Operator	Change user's name.	
Reset	Initialize application Set.	

2) Device Set

Set equipment.



Name	Description	Details
Lamp Change Wave	Select wavelength point of lamp change	Select between 340~410nm
Sipper	Use of sipper	
D2 Power Save	Select D2 Lamp power save	Without necessity of UV range, check D2 power save 'ON' to extend the lifespan of D2 lamp. Caution : ON/OFF saving mode may create diminution of D2 lamp's lifespan.
Sound	select voice guide and sound effect	
Volume	set volume	
Printer	direct connection/network connection	
Printer Option	select display of printer option tab.	If you check 'hide', it will print without modifying of the print option.
Interface	Select PC connecting method	
Reset	initialize Device Set	

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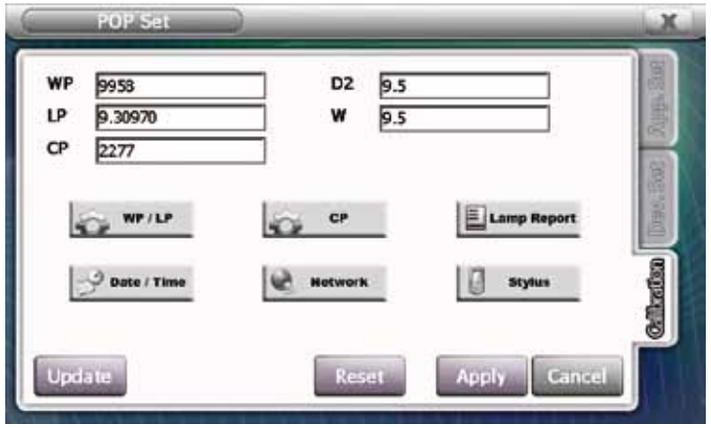
3) Calibration

Caution : The factors are crucial for the performance of the instrument. Do not change it without any guidance.

Calibrate the equipment



Name	Description	Details
WP	Calibration Factor	On point of wavelength
LP	Calibration Factor	Motor steps to move 1 nm of wavelength
CP	Multicell Holder calibration factor	Motor steps to move 1 cell holder at multi cell holder.
D2	Used time of D2 lamp	
W	Used time of W lamp	

Name	Description	Details
WP LP	Start calibration of WP & LP	
CP	Start calibration of CP	
Lamp Report	Check and print used time of D2 & W-lamps	For lamp warranty
Reset	Initialize calibration value	You must perform calibrating the equipment again after Reset.

9. File Browser

It is possible to copy or delete the file between internal and external storage devices.

1. Touch  to move File Browser mode.

[Data] : basic data storage (2GB)

[Favorite] : [Favorite] folder

* To show the files at the [Favorite] folder of the main menu, you should move data files to [Favorite] folder.
(Ref : 7. Favorite - 79page)

[USB] : USB memory

2. Select the storage device to copy the file from.
3. Select the folder.
4. Check the files to copy. (Multi select available.)
5. Touch  .
6. Select the storage device to copy the file to.
7. Select the folder.
8. Touch  .

Part Ⅲ. Technical Supports

1. Technical Supports

When you have any difficulties of using Optizen POP, Please go through and review with this user's guide. If troubleshooting does not help to solve troubles, please contact your nearest distributor or producer.

Caution: When contact for after service, must be reported symptom of trouble.

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